AD HOC COMMITTEE ON DENTAL AUXILIARIES

REPORT

1970

Canada [Commissions and committees of inquiry]

Ont. committee on dental auxiliaries

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AD HOC COMMITTEE
ON
DENTAL AUXILIARIES

Ottawa
September 25, 1970

The Honourable John C. Munro,
Minister of National Health and Welfare.

Sir:

We, the undersigned members of the Ad Hoc Committee, appointed to study all aspects of dental auxiliaries, especially as to their contribution to the better dental health of all Canadians, respectfully submit this report of our unanimous findings.

Chairman

Members

Ex Officio

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PREFACE

The impetus to form the Ad Hoc Committee on Dental Auxiliaries came from Dr. R.A. Connor, Chief of the Dental Health Division, Department of National Health and Welfare. He had noted that following the recommendations of the Royal Commission on Health Services[1] concerning the use of auxiliaries to expand dental services, the active interest of the dental profession[2] had been arroused. Through his efforts and with the support of the Advisory Committee on Dental Health[3] and the Sub-committee on Dental Resources Development[4], the Dominion Council of Health[5] recommended to the Minister that an Ad Hoc Study Committee on Dental Auxiliaries be established to make recommendations concerning all aspects of the use of dental auxiliary personnel in Canada and that the Canadian Dental Association be invited to participate in the selection of the Committee. The following press release, issued by the Department of National Health and Welfare, explains the Committee's composition and terms of reference.

"COMMITTEE ON DENTAL AUXILIARIES FORMED"

JUNE 13, 1968, OTTAWA – The formation of an Ad Hoc Committee to study all aspects of dental auxiliaries was announced today by the Honourable Allan J. MacEachen, Minister of National Health and Welfare.

The Committee was initiated by the Advisory Committee to the Minister on Dental Health and formed with the cooperation of the Canadian Dental Association. Members will study all aspects of dental auxiliaries, especially as to the possible contribution auxiliaries could make in helping achieve better dental health for Canadians.

This Committee of multi-disciplinary memberships, both lay and professional, is involving in an organized way a level of knowledge and talent that has never before been concentrated on the major problem of finding solutions in this important component of the total health field.

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[1] *The Royal Commission on Health Services* Vol. I, Ottawa: The Queen's Printer, 1964, pp. 75-77.

[2] Canadian Dental Association, *Transactions*, 1965.

[3] Advisory Committee on Dental Health, *Minutes* Second meeting, Department of National Health and Welfare, 1966.

[4] Sub-committee on Dental Resources Development, Department of National Health and Welfare, Ottawa, 1966.

[5] Dominion Council of Health, *Minutes* 89th Meeting, Ottawa, 1966.

The composition of the Committee is as follows:

- Chairman – the Honourable Dalton C. Wells, Chief Justice of the High Court of Ontario.
- Four dentists representing private practice, nominated by the Canadian Dental Association – Dr. J.F. Reid, North Vancouver, British Columbia; Dr. M.A. Kamienski, Scarborough, Ontario; Dr. J.G. Belanger, Montreal, Quebec; and Dr. C.E. Dexter, Halifax, Nova Scotia.
- One member representing dental education nominated by the Association of Canadian Faculties of Dentistry – Dr. C.W.B. McPhail, Professor and Head, Department of Social and Preventive Dentistry, College of Dentistry, University of Saskatchewan, Saskatoon, Saskatchewan.
- One member representing dental public health nominated by the Canadian Society of Public Health Dentists – Dr. Murray Hunt, Director, Division of Post-graduate Dental Education, Faculty of Dentistry, University of Toronto, Toronto, Ontario.

Nominated by Chief Justice D.C. Wells:

- One member representing the consumer – Mr. Cleve Kidd, Executive Vice-President, Canadian Air Line Pilot's Association, Montreal, Quebec; (as of July, 1970, teaching at the Niagara College of Applied Arts and Technology, Welland, Ontario).
- One member representing the broad field of public health – Dr. G.D.W. Cameron, Peterborough, Ontario, formerly Deputy Minister of Health, Department of National Health and Welfare, and currently President of the Victorian Order of Nurses.
- One member representing dental auxiliaries – Dr. Marjorie Jackson, Director, Division of Dental Hygiene, University of Toronto, Toronto, Ontario.
- Ex officio members of the Committee are – Dr. J.N. Crawford,* Deputy Minister of National Health and Dr. R.A. Connor, Chief of the Dental Health Division, Department of National Health and Welfare.
- Additional members may be added, if felt necessary.

An organizational meeting was held recently in Ottawa with the next meeting scheduled to take place on June 21, 1968.

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*Retired as Deputy Minister of National Health August 29, 1969.

> Among other activities it is expected that the Committee will be requesting briefs from various health and lay organizations, to assist in recommendations the Committee may make regarding dental auxiliaries."

In the above news release 'representing' means 'associated with'.

Dr. Bruce A. McFarlane, Professor of Sociology, Carleton University, Ottawa, Ontario, was nominated by Chief Justice Wells in September, 1968, and added to the Committee.

During the course of its deliberations the Committee received briefs and letters from organizations representing the dental profession and licensing bodies, dental assistants, hygienists, technicians and mechanics. A considerable body of literature on dental manpower and auxiliaries was gathered by the research officers of the Dental Health Division of the Department of National Health and Welfare and augmented by papers suggested by various committee members. A total of ten meetings of the Committee were held. A list of briefs and letters is contained in Appendix A.

Throughout the report the term dental auxiliary is used to designate a person who is "helpful to"[1] the dental profession. The terms ancillary, meaning "subservient or subordinate" and para-dental, meaning "ancillary to" have been avoided for purposes of clarity.

Chapter I discusses briefly the state of dental health of some Canadians, the need to improve the supply and distribution of dental manpower and the organizational pattern of dental health services. In Chapter II is discussed, among other things, the various categories of dental auxiliaries in Canada and elsewhere in terms of their productivity and utilization, their duties, contributions to health and their acceptability by the public and the dental profession. References are also made to the influence of organized dental programs on the demand for dental care. The final chapter, Chapter III, contains a discussion of the findings and the recommendations of the Committee.

The Committee's recommendations have emerged as the result of a series of compromises gained through an educational process in which the aspirations of the dental profession and auxiliaries were brought into focus in relation to the dental health of the public.

Views of individual committee members, strongly held as the result of previous experience gained in some more isolated sphere of activity, altered as they became aware of other factors influencing Canadian dental care and health. As we present the report with our unanimous support we hope that dental professional and auxiliary organizations and governments will act on the recommendations with the same spirit of cooperation gained through our service on this Committee.

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[1] The Concise Oxford Dictionary, Oxford, at the Clarendon Press, 1964, p. 79.

SUMMARY OF RECOMMENDATIONS

Recommendation 1

That the duties of Dental Assistants be defined in *Provincial Dental Acts* as including the present commonly accepted duties such as:

(a) patient reception
(b) preparation of the working area
(c) sterilization of instruments
(d) handing instruments to the dentist
(e) preparation of filling materials
(f) developing and mounting of radiograms
(g) performance of simple laboratory procedures
(h) recording data on patients' record cards
(i) bookkeeping
(j) rendering and receiving accounts
(k) ordering and receiving office supplies
(l) making appointments
(m) other extra-oral duties as prescribed by the dentist.

In addition, Dental Assistants who have passed an accredited[1] training program should be licensed to perform the following tasks:

(a) taking impressions for study casts only
(b) placing and removing rubber dams
(c) placing and removing matrix bands
(d) placing of temporary restorations
(e) removing dentures
(f) rubber cup prophylaxis
(g) applying anti-cariogenic agents to teeth
(h) supervision of other forms of topical anti-cariogenic agents
(i) exposure and processing of radiograms and photographs
(j) other duties which may from time to time be approved by provincial licensing bodies.

Recommendation 2

That the duties of Dental Hygienists be defined in *Provincial Dental Acts* as including:

(a) preliminary examination of patients and provision to the dentist of dental health data

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[1] See Recommendations 24 and 27.

(b) scaling and polishing of teeth

(c) topical application of anti-cariogenic agents

(d) patient and community education in oral health

(e) exposing and developing radiograms

(f) performing extra-oral duties designated by the dentist

(g) administration of first aid

(h) application of the rubber dam.

In addition dental hygienists whose accredited[1] training programs included training in the following tasks should be licensed to perform the following additional duties:

(a) application of temporary sedative dressings to hard or soft tissues

(b) taking impressions for study models (this is not intended to preclude the possibility that individual provincial licensing bodies may wish to recognize by formal examination and certification dental hygienists with additional education and training for the various specialties in dentistry whose duties may include the taking of impressions for the actual fabrication of dental appliances or prostheses)

(c) repairing artificial dentures

(d) placing and removal of matrix bands

(e) placing of orthodontic bands

(f) placing and finishing amalgam restorations

(g) placing and finishing of silicate and plastic restorations

(h) placing and finishing temporary cements

(i) preparation and restoration of teeth by plastic type of filling material

(j) other duties which may from time to time be approved by provincial licensing bodies and for which the dental hygienist has been trained.

Recommendation 3

That the duties of dental technicians be defined in *Provincial Dental Acts* as including:

the fabrication, reproduction or repair of fixed or removable prosthetic appliances, crowns or bridges, as prescribed by a dentist.

Recommendation 4

That those dental technicians who have completed an accredited[1] educational and training program may, on prescription by a dentist, perform the additional duties of fabrication and fitting of complete dentures and/or the fabrication and fitting of orthodontic bands directly for the public.

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[1] See Recommendations 24 and 27.

Recommendation 5

That dental technicians who have completed the requirements for the performance of the additional duties noted in recommendation 4 be known as *Dental Technologists*[1] .

Recommendation 6

That *Dental Technologists* will work in dental offices and clinics under the supervision of a dentist.

Recommendation 7

That provincial licensing bodies deem the training and experience of the Canadian Forces Dental Therapist to be equivalent to that of the dental hygienist and permit him or her to be registered in the province as a dental hygienist.

Recommendation 8

That the preferred academic educational settings for all Dental Assistant educational and training programs are:

(i) the third and fourth years of the secondary school, and,

(ii) the post-secondary institutes.

Proprietary schools are deemed inappropriate for this task.

Recommendation 9

That alternative academic educational settings for upgrading the present body of *Dental Assistants* and the training of *mature* students should be evening courses and/or summer programs under the aegis of the high schools or post-secondary institutions. The programs should be of sufficient length to meet accreditation requirements.

Recommendation 10

That the subsequent or concurrent clinical training of the *Dental Assistants* be located, in order of preference, in one or more of the following four settings:

(i) approved dental educational and service clinics

(ii) faculties of dentistry

(iii) clinical teaching faculties developed in non-university educational settings

(iv) offices of dentists participating in the training program.

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[1] See Recommendations 17, 18, 19, 20, 24, 27 and 39.

Recommendation 11

That for the present the university diploma programs for *Dental Hygienists* be retained and new diploma programs be established at other post-secondary institutions.

Recommendation 12

That *Dental Hygiene* diploma programs at the universities be phased out when the programs at the other post-secondary institutions are permanently established.

Recommendation 13

That Bachelor's degree programs in *Dental Hygiene Education* be developed at the universities in order to provide the teaching and supervisory manpower for the *new* programs noted in Recommendations 8, 9, 10 and 11.

Recommendation 14

That provisions for some credit in degree programs in *Dental Hygiene Education* be arranged with the universities so that graduates from the diploma programs in *Dental Hygiene* in the post-secondary institutions may progress to a higher level of education without hindrance.

Recommendation 15

That the clinical component of the *Dental Hygienist's* training at the new post-secondary institutions be located in:

(i) approved central dental and educational service clinics; and/or,

(ii) faculties of dentistry.

Recommendation 16

That refresher and retraining programs for hygienists be developed by schools teaching dental hygiene.

Recommendation 17

That the preferred academic educational setting for both the *Dental Technicians* and the *Dental Technologists* (dental technicians with expanded duties) be the post-secondary institutions.

Recommendation 18

That the laboratory and/or clinical training of the *Dental Technicians* and the *Dental Technologists* be located in order of preference, in one or more of the following four settings:

(i) post-secondary institutions with adequate laboratory facilities

(ii) approved dental and educational service clinics

(iii) accredited dental laboratories

(iv) offices of dentists participating in the training program.

Recommendation 19

That the present system of on-the-job apprenticeship be phased out when sufficient post-secondary programs for educating and training *Dental Technicians* and *Dental Technologists* are available.

Recommendation 20

That shorter upgrading programs, as short as the equivalent of one full-time academic year, be devised in the post-secondary educational system for *Dental Technicians* and others governed by provincial Dental Technicians' Acts who wish to improve their qualifications to the level of *Registered Dental Technologist.*

Recommendation 21

That dental students work with experienced dental assistants, hygienists, and dental technicians to make them more aware of the usefulness of dental auxiliaries. That is, to foster the team approach to dental care.

Recommendation 22

That a *Canadian Council on Dental Auxiliaries* be established.

Recommendation 23

That the Membership of the *Canadian Council on Dental Auxiliaries* consists of representatives from each of the Provincial Councils on Dental Auxiliaries and representatives, including dentists, named by the Minister of National Health and Welfare.

Recommendation 24

That the *Canadian Council on Dental Auxiliaries* deals with matters such as national certification and accreditation of educational and training institutions for dental auxiliaries.

Recommendation 25

That each province establishes a *Council on Dental Auxiliaries.*

Recommendation 26

That membership on each provincial *Council on Dental Auxiliaries* consists of 11 members to include:

3 Dental Auxiliaries (one from each of the Dental Hygiene, Dental Technician and Technology, and Dental Assistants Boards)

3 Dentists (one appointed from each of the following: the Provincial Dental Association, the Provincial Licensing Board, and the Provincial Department of Public Health)

3 Laymen (appointed by the Provincial Minister of Health)

1 Member appointed by the Minister of Education

The Minister of Health or his designate.

Recommendation 27

That there be Provincial Acts regulating *Dental Auxiliaries* and the Acts contain provisions for the regulation of:

(i) admission and registration
(ii) qualification
(iii) education and training
(iv) examinations
(v) fees
(vi) complaints procedures
(vii) illegal practice
(viii) organization of clinics where necessary
(ix) establishment of training schools
(x) definition of rightful duties.

Recommendation 28

That three *Boards* be established within the terms of the Provincial Dental Auxiliaries Act in each province to administer the appropriate sections of the Act pertaining to *Dental Hygienists, Dental Technicians* and *Dental Technologists,* and *Dental Assistants.*

Recommendation 29

That the Membership of each of the three provincial *Boards* (*the Dental Hygienist Board, the Dental Technician* and *Dental Technologist Board*, and *the Dental Assistant Board*) should consist of a majority of Members elected by the corporate members of each group and some lay representatives.

Recommendation 30

That each provincial *Board* of *Dental Hygienists, Dental Technicians* and *Dental Technologists*, and *Dental Assistants* will be responsible for administering their appropriate sections of the Provincial *Dental Auxiliaries Act.*

Recommendation 31

That dental care in its broadest sense be offered to all Canadians incorporating the same principles of quality control and financing as medical care as soon as feasible.

Recommendation 32

That in order to work towards this end (*Recommendation 31*), a *National Dental Program for Children* encompassing all known methods of prevention, education, and treatment, should be started *immediately*.

Recommendation 33

That *the National Dental Program for Children* should start with younger children and encompass new age groups on an annual basis until school leaving age children have been included, at which time the whole Canadian population should be included as noted in *Recommendation 31*.

Recommendation 34

That school dental services or alternately other community dental services, where school dental services cannot be provided, be made available for all children up to school leaving age.

Recommendation 35

That the financial barrier to the attainment of dental care by eligible groups of children be removed in the public health and private practice spheres of dentistry.

Recommendation 36

That parents have the option of sending their eligible children to private dental practitioners or the public dental service.

Recommendation 37

That the Minister of National Health and Welfare and the Ministers of the respective Provincial Departments of Health be responsible in their own jurisdiction for the planning, financing and operation of dental programs supported by public funds.

Recommendation 38

That the responsibilities of the Ministers of Health detailed in *Recommendation 37* be delegated responsibilities of strengthened Dental Health Divisions in the Departments of Health where the expertise to deal with the complexities of dental care can be employed.

Recommendation 39

That provinces, wishing to allow dental technologists to provide limited services for the public under supervision of a dentist duly licensed to practice dentistry in the province, should not invoke the 'grandfather clause' for the present body of dental technicians who wish to enter the field. Instead we recommend that they be required to attend the two-year academic training program or the short upgrading programs, mentioned in *Recommendations*

17, 18 and 20, and, in addition, pass the examinations set by the educational authorities and meet all other requirements necessary for licensure.

Recommendation 40

That the Federal and Provincial Governments devise incentives for dentists to develop the team approach to dentistry by expanding dental office space to employ additional numbers of dental auxiliaries either in private offices or in private or public clinics.

Recommendation 41

That the Federal and Provincial Governments provide funds to construct and equip facilities and to provide staff for dental auxiliaries' training programs.

Recommendation 42

That the Federal and Provincial Governments provide bursary assistance to students enrolled in accredited dental auxiliary training programs.

Recommendation 43

That the Federal and Provincial Governments stimulate and support operational and other continuing research designed to improve the contribution of dental auxiliaries to the dental health care delivery systems.

CHAPTER I

INTRODUCTION

Numerous studies carried out in Canada over a number of years all attest to the generally poor state of the dental health of many Canadians. Although data on the dental health status of Canadians are still relatively scarce, particularly as they apply to adults, there is enough information to show that dental health is directly related to the availability of dental manpower. For example, to illustrate the two extreme situations, children in Metropolitan Toronto, in 1960, obtained approximately 60 per cent of the basic services they require in terms of restored teeth, while those in rural Nova Scotia obtained only 11 per cent of their requirements. Of young men, ages 17 to 23, entering the Canadian Forces, 95.12 per cent had one or more carious teeth but 56.7 per cent had no dental restorations; i.e., there was no evidence that they attended a dentist for services other than extractions[1] . In addition, 85.41 per cent had lost one or more teeth and 35.38 per cent needed or had a full or partial denture.

There is general consensus among dental practitioners and others in Canada that the profession at the present time is able to provide about one-third of the total dental treatment services required. These services are provided largely in a private enterprise setting. Concern for this aspect of the provision of health care is heightened by the knowledge that prepaid dental care, in the form of a government-sponsored children's dental health service, is being contemplated and also that there are a number of other social and economic factors likely to lead to an increasing level of demand for dental services by the general public. As one researcher sees it:[2]

> The continued raising of the general level of education of the adult population and the consequent acquisition of a new set of social values (essentially middle-class values) by a segment of society which formerly received only a minimal education will have considerable impact in the future on demand for dental services. (In addition, increased level of education tends to lead in the industrial nations to increased levels of income, therefore increased demand for service.)

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[1] Director-General, Canadian Forces Dental Services – *The Dental Condition of the Canadian Forces*, Ottawa, 1969.

[2] McFarlane, Bruce A., *Dental Manpower in Canada* Royal Commission on Health Services, Ottawa: The Queen's Printer, 1964, p. 116.

> Another factor not completely unrelated to the foregoing is the rapid process of urbanization in Canada – before World War II 65 per cent of the population could be classified as non-urban, today the balance has reversed and the trend continues unabated. Because of this a smaller proportion of the population will be considered to be "isolated" and not within easy reach of a dentist or dental clinic. Urbanism is also a way of life and bears with it a new set of social values for those recently migrated from the rural areas and. . .greater demands for dental service by the urban population than by the rural are a reflection of these differing attitudes.
>
> The increasing prevalence of prepayment insurance programs and post-payment (essentially instalment plan purchasing of dental services) health plans, including dentistry, will likely lead to greater demand for dental services when the initial outlay of large sums for these services at time of treatment is no longer necessary.
>
> Needless to say a government sponsored medicare plan operating with the support of the dental profession as in Great Britain, Sweden and Norway, among others, will lead inevitably to greater demand for services. Since most of these plans usually introduce free dental care in stages, beginning with young school-age and pre-school-age children (except for the United Kingdom where complete coverage was introduced at once) the full impact of the resulting demand for services is eased. It [the demand] will continue to increase, however, as the age for which coverage is available increases by stages as those school-age children who were in at the beginning grow into adulthood and continue the good dental health practices learned at school.

There is a need, then, for an increase in the supply of dental services for the Canadian population.

The ideal method, in terms of tradition and present quality of service, for increasing the supply, might be to increase dramatically the number of dentists available and the efficiency of dentists. However, to cope with the present and near-future demand this would mean changing the dentist-population ratio from 1:3000 to 1:1200 if demand for services approaches that of some countries with organized dental care programs. This is, of course, utopian in the short run, since it would mean doubling and tripling the output of the present dental schools plus the opening of many, many more new schools. Present plans call for a dentist to population ratio of 1:2500 by 1986, and further gains are unlikely because of governmental financial priorities[1].

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[1] *The Royal Commission on Health Services*, Vol. I, Ottawa: The Queen's Printer, 1964, p. 554.

The distribution of dentists leaves much to be desired. It has been estimated that 55 per cent of Canadians live in regions where they cannot obtain more than 35 per cent of the required services due to manpower shortages[1].

The present shortage of professional manpower in dentistry is not a unique situation – most professions have, at one time or another, been faced with a similar problem. In most instances, this has resulted in the delegation of standardized duties and practices to members of auxiliary occupations associated with the professions. Indeed, many of the occupational skills, duties and responsibilities of a number of present-day semi- and sub-professional groups (e.g., nurses, engineering technicians and technologists, architectural technologists, x-ray technologists, etc.) are composed primarily of duties which have been passed on in this fashion by the "parent" profession[2].

Two dentists studying the use of auxiliaries in medicine have noted that[3]:

> Physicians are far ahead of dentists in utilizing a variety of auxiliaries and in delegating duties to them. In 1955-56 in the United States it was estimated [Dunning, *Am. J. Pub. Health*, 48:1059-64] that the ratio of physicians to *professionally trained* auxiliaries was 1.0:1.6; the ratio of dentists to *professionally trained* auxiliaries was 1.0:0.4. At that time, physicians used about four times as many professionally trained auxiliaries as did dentists. Another estimate contended [Taylor, A.N., *Kellogg Foundation Institute Workshop,* Ann Arbor, Michigan, 1962, pp. 107-114], in 1962, that there were 11 auxiliaries of all types for each physician, a figure which had doubled in 10 years. Now ancillaries to auxiliaries are being trained and used.

This division of labour has found its way into the dental profession in Canada, albeit in a limited way, and the dental hygienist, dental assistant and dental technician are nationally recognized occupational groups in the dental hierarchy. This process has proceeded even further in dentistry in a number of Commonwealth and other countries and new occupational groups performing an increasing proportion of the more standardized and routine

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[1] Hunt, A.M., *Projected Needs for Dentists in Ontario*, Part I (mimeo.). Background paper, prepared for The Manpower Committee of the Ontario Council of Health, May 1968.

[2] McFarlane, Bruce A., "A Sociologist's appraisal of the Report of the Royal Commission on Health Services", *J. Canad. Dent. Assn* Vol. 30:611-615, 1964.

[3] Striffler, David F. and Gillespie, George M., "Dental Manpower in the Americas and Its Implications for Community Program of Dental Public Health", Chapter VII in *Better Health for the Americas*, Proceedings of the Hemispheric Conference, San Juan, Puerto Rico, 1966, p. 48.

tasks (including the cutting and severing of hard tissues among others), formerly carried out by the dentist, have been created, e.g., the dental nurse or dental auxiliary in New Zealand, Australia, and Great Britain, and in at least 11 other countries[1].

There is, at present, demand from both professional and auxiliary groups that the dental profession in Canada move in this direction, that is, that some of the professional's tasks be passed on to auxiliary occupational groups[2]. Whether a new auxiliary group is to be created (e.g., U.K. dental auxiliary), or whether these additional duties should be passed on to a group already in existence (i.e., the dental hygienist) is still a matter of some contention even among the supporters of this "passing on" process. There tends in Canada, however, to be more support for the latter rather than the former proposal.

Of the 6,623 dentists registered in Canada in 1967, only 576 worked as full-time salaried dentists, an additional 365 were engaged in part-time salaried positions and the remainder (85.8 per cent) were wholly engaged in private practice. It is obvious that the present organization of dental services has not solved the problems of numbers, distribution and adequate provision of service to the population as a whole. Hence, it would appear that in addition to the present facilities available, mainly private practice, provision must be made for the introduction of additional outlets for the delivery of dental care services. These may take the form of school and hospital dental clinics, regional public health clinics or mobile clinics, settings where the team approach to dental care can be developed and the demand for needed care increased. This, of course, will require increased and continuous cooperation and planning on the part of governments, professional associations, individual practitioners, teaching institutions and the public. In fact, successful planning of delivery of dental care services is doomed to failure without positive support, initiative and commitments on the part of *all* the above mentioned bodies.

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[1] Leatherman, G.H., "Survey of Auxiliary Dental Personnel", *Int. Dent. J.*, Vol. 19:49-54, 1969.

[2] *Briefs.* Denturists: Saskatchewan and Manitoba; Dental Technicians: Quebec and Nova Scotia; Dental Hygienists; Canadian Dental Hygienists Association; Departments of Public Health: Nova Scotia and Saskatchewan. In addition: *Ordinances of the Yukon Territory* (Assented to Dec. 4, 1964), wherein extended intra-oral duties of the dental hygienist are delineated.

CHAPTER II

DENTAL AUXILIARIES

The use of auxiliaries by the dental profession has a long history. There are four generally accepted types of dental auxiliary in Canada; the dental hygienist, the dental assistant, the dental receptionist/secretary and the dental technician. In addition, the dental mechanic, the New Zealand type of dental nurse, and the Canadian Forces therapist, can practise in restricted Canadian settings determined by their geographical or organizational affiliation.

In other countries similar and other personnel are utilized but one or more types may predominate according to the organization of dental health plans which have evolved. The noteworthy feature of some of the organizational settings abroad is that auxiliaries with vastly expanded, intra-oral duties work under the supervision of dentists primarily in the public sphere.

Whenever and wherever auxiliaries have assumed duties which traditionally belonged to the dentist, questions of education, professional responsibility, supervision and control have been raised. The facts that a system using this type of personnel has been in existence in New Zealand for over 40 years, that illegal practice by the nurse is non-existent, and that the dental health of the child population has improved dramatically, are ample proof that these problems are not insurmountable. On the other hand, in cases where the profession has not paid particular attention to these problems, first, illegal practice and then enactment of legislation for groups outside the control of the profession has developed, for example, the dental mechanics in British Columbia and Alberta.

Productivity and Utilization

There is no doubt that the dentist needs auxiliary personnel of one type or another and indeed, these personnel to date have improved his productivity while at the same time increasing his income. For example, in 1963, dentists with one chair and no full-time helpers had an average net income of $9,097, while those with one chair and one assistant had an average net income of $13,366. Dentists with two chairs and no employees had a net income of $13,108, with one assistant $15,974, and with one assistant plus one hygienist $19,851[1]. All the gains are not necessarily due to

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[1] Canadian Dental Association, Bureau of Economic Research. *Survey of Dental Practice, 1963.* Toronto: Canadian Dental Association, 1963.

productivity alone because in many cases dentists who earn more may simply charge more. The American Dental Association reported, however, that dentists with two full-time employees saw 25 per cent more patients in a year than did those with one[1]. In Canada, the overall ratio of hygienists to dentists was 1:18 in 1968, i.e., less than 6 per cent of the dentists were able to make use of the only auxiliary who could work intra-orally. Hygienists, therefore, because of their limited numbers, have not been able to play the role they are capable of playing in the overall productivity of Canadian dentists. Their increasing number in the public health sphere has no doubt increased the number of people whose health has been improved by educational and preventive effort.

The Canadian Forces' therapists are trained and can work only in the Canadian Forces. After working 3.5 years performing duties similar to those of the civilian dental hygienist, he is trained in an intensive 16-week course to fill teeth prepared by the dental officer, take preliminary impressions, place periodontal packs, remove sutures and irrigate post-operative wounds. In a recent experiment, the productivity of teams of dental officers, assistants and clinical supervisors in various combinations was studied. A net gain in productivity of 69.8 per cent was observed when one therapist was added to a team of one dental officer and two assistants[2]. It must be recognized, however, that conditions of patient control in the Canadian Forces are dissimilar to those in private dental practice as is the educational process of the therapist.

The best known and the most widely employed member of the dental auxiliaries in Canada is the dental assistant. She performs a wide range of duties ranging from patient reception to immediate chairside assistance. Indeed, McCutcheon[3] has pointed out that the only duties of the dentist are those which the assistant cannot or is not allowed by law to do. Her contribution to the dentist's productivity has been substantial. Further gains in output have been accomplished by expanding her permitted list of duties to include some intra-oral and educational procedures presently performed by the hygienist or dentist. For example, Aimores[4] in Brazil, faced with the problem of staffing a preventive dental program, including a prophylaxis followed by topical applications of fluoride, used dental assistants to good advantage because hygienists were not available.

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[1] Bureau of Economic Research and Statistics, "The 1962 Survey of Dental Practice", American Dental Association, *J. Amer. Dent. Ass.*, 67:533, 1963.

[2] Baird, K.M., Covey, G.R. and Protheroe, D.H., "Employment of Auxiliary Clinical Personnel in the Royal Canadian Dental Corps", *J. Canad. Dent. Assn.*, 33:184, 1967.

[3] McCutcheon, J., "Manpower in Dentistry – The Dental Assistant", *J. Canad. Dent. Assn.*, 27:10, 1961.

[4] Freire, Paolo S., "Implementing Scientific Research; The Role of the Department of Health", *Better Oral Health for the Americas*, Proceedings of the Hemispheric Conference, San Juan, Puerto Rico, 1966, p. 62.

Dental technicians have increased the dentists' productivity enormously by fabricating appliances, duties which the dentists formerly performed at the expense of chairside patient care.

In some provinces, legislation has allowed dental mechanics to deal directly with the public, thus increasing the number of services performed. While the latter arrangements have been opposed by some segments of the dental profession, obviously they are supported by a segment of the public and a few legislators who have taken the attitude that some service is better than none[1].

Gains in productivity due to employment of the New Zealand Dental Nurse must be assessed in a different manner. She does not necessarily work with the dentist and has been trained in sufficient numbers. Therefore, services have been extended to a large segment of the child population which received minimal care prior to the creation of this class of auxiliary.

Any recommendations related to a change in the permissible duties of the various categories of auxiliary personnel and, hence, legislation must be related to the actual needs of private dental practice or any other mode of delivery of dental health care such as group practice or hospital, school or public health clinics, the expected long and short term availability of such personnel and the needs of the public which in itself is the paramount consideration.

Auxiliary Personnel With Expanded Duties: Some Case Studies

In the previous section some reference was made to a few instances wherein auxiliary personnel performed duties normally beyond those expected by Canadians in these occupations. Below are cited a number of experimental and established systems which employed such personnel and various assessments of their accomplishments.

a) *Dental Assistant*

According to Arnold[2], five studies have been conducted in North America which indicate that carefully selected females can be trained to perform numerous operations which have traditionally been performed by the dentists. These operations include:

1. taking impressions for study casts
2. placing and removing rubber dams
3. placing and removing matrix bands
4. condensing and carving amalgam restorations in previously prepared teeth

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[1] Cf. Hillenbrand, Harold, "KEYNOTES: An address to dental examiners and dental educators", *J. Amer. Dent. Ass.*, Vol. 74:1464-1467, 1967.

[2] Arnold, G.Th.E.R., "The Dental Assistant, the Clinical Chairside Assistant and the Dental Hygienist as Members of the Dental Team in General Practice", *Int. Dent. J.*, 19:12, 1969.

5. placing of silicate and acrylic restorations in previously prepared teeth
6. applying the final finish and polish to restorations
7. placing and removing temporary restorations.

It was estimated that delegation of these operations would save 50 per cent of the dentist's time needed for plastic filling materials.

"In Sweden, the dental health educator who has the right to apply topical applications of fluoride is an assistant who must take an additional 6-week course after training as a dental assistant."[1]

The Provinces of Saskatchewan and British Columbia have embarked on formal training programs for dental assistants with expanded duties. It is expected that assistants, capable of undertaking duties such as simple prophylaxis[2], topical fluorides and x-rays and preparation of preliminary models will graduate from the course. They will serve in both the public and private spheres of dentistry.

Some dental assistants in the United Kingdom take dental radiographs, as they do in most states in the United States[3].

Dental assistants in Brazil, with an additional period of training, manned a preventive dental public health service in which they did a simple prophylaxis and applied topical fluorides to children's teeth.

b) *New Zealand Type Of Dental Nurse*

In New Zealand the Dental Nurse has a long history of working in the school system. The first school Dental Nurses were graduated in 1925. "The intra-oral duties of the school dental nurse include dental examination, prophylaxis (including scaling and removal of stains), the filling of deciduous and permanent teeth under local anaesthesia, and the radiographic examination of the teeth and supporting structures"[4]. The dental nurses' services are restricted to children under 14 years of age.

Numerous reports purporting to assess the quality of care received by the school children in New Zealand have been prepared; of these, probably the two most widely publicized are those of Fulton[5] and

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[1] Leatherman, G.H., "Survey of Auxiliary Dental Personnel", *Int. Dent. J.*, 19:48, 1969.

[2] A simple prophylaxis involves the cleaning of teeth using a rubber polishing cup.

[3] Leatherman, *op. cit.*, p. 50.

[4] Leatherman, *op. cit.*, p. 52.

[5] Fulton, J.T., Experiment in Dental Care: Results of New Zealand's Use of School Dental Nurses., *World Health Organization*, Geneve, 1951.

Gruebell[1]. Dr. D.J. Beck, quoting J.M. Dunning of Harvard University, has this to say:[2]

> "The question of quality of workmanship is an important one to consider, and both Fulton and Gruebbel have attempted evaluation of it. Fulton's opinion was generally favourable, Gruebbel's less so in view of certain surface inadequacies noted in the fillings he inspected. Even if we assume that 28 per cent of the fillings received by New Zealand children are defective, as Gruebbel does, and if none of the fillings placed by American dentists are considered defective (an almost impossible optimistic assumption), the New Zealand children in both Fulton's and Gruebbel's surveys still had more good fillings in their mouths than any known comparable group of American children of ages 12 to 14. In appraising the adequacy of training of the New Zealand dental nurses, it is important to remember how many difficult dental subjects they do not have to learn: endodontics, periodontics, much of oral surgery, and the entire field of dental prosthetics, to name the most important. This allows more time than might at first be imagined for good training in operative dentistry."

The majority of recent studies of the New Zealand care system resulted in favourable reports. The training and acceptance of New Zealand type dental nurses is on the increase throughout the world and whereas in a 1960 F.D.I. survey six countries participating were using them, by 1968 a total of 14 countries were utilizing this category of auxiliary in public dental services[3]. It should be noted that there are variations in their scope of duties. "In Ceylon and the United Kingdom extraction is confined to the deciduous teeth, and in Australia, Indonesia, Malaysia, Thailand and New Zealand, treatment is confined to children under 14 years of age".[4] Further information on this type of auxiliary in the United Kingdom is contained in the following section.

c) *United Kingdom Dental Auxiliary*

The person with training similar to the New Zealand Dental Nurse is known in the United Kingdom as the Dental Auxiliary. *A Final Report on the Experimental Schemes For The Training and Employment of Dental Auxiliaries* states that the two-year formal course for dental

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[1] Gruebbel, A.O., "Report on the Study of Dental Public Health Services in New Zealand", *J. Amer. Dent. Ass.*, 41:275, 422, 574, 1950.

[2] Beck., D.J., "Evaluation of Dental Care for Children in New Zealand and the United States", *N.Z. Dent. J.*, 63:201, 1967.

[3] Leatherman, G.H., *op. cit.*, p. 49

[4] Ibid., p. 52.

auxiliaries included training in the carrying out of the following treatment of children[1] :

a) simple dental fillings

b) the extraction of deciduous teeth under local infiltration anaesthesia

c) scaling, cleaning and polishing teeth

d) the application of sodium or stannous fluoride

e) dental health education.

A general assessment of the quality of work and the contribution being made by the dental auxiliaries participating in the experiment was made by a panel of 28 independent assessors ("practitioners of experience and high standing") appointed by the General Dental Council. The report notes:

> From the observations of the assessors it is evident that they found that most of the work (simple fillings, etc.) of dental auxiliaries was of high quality. The evidence of the employing authorities also shows that the quality of clinical work is high.
>
> In addition they state:
>
> The Council concludes that the work of dental auxiliaries in dental health education is valuable and that properly organized over a wide area it might play an appreciable part in the reduction of dental disease.

It is important to note that dental auxiliaries in the United Kingdom may work only in public health dental services and provide services there only for children. Their work is more closely supervised than that of the New Zealand Dental Nurse.

d) *Dental Hygienist*

In Manitoba, British Columbia and Nova Scotia, a number of additional procedures, mainly in the field of prosthetic dentistry, have been added to the hygienists' scope of duties.

At the present time the Prince Edward Island Department of Health is conducting an experiment in which hygienists, trained for two additional months at Dalhousie University, will perform their normal duties and, in addition, fill teeth previously prepared by the dentist[2].

The dental therapist, employed in the Canadian Forces and previously trained in the Forces to provide the services of a dental

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[1] General Dental Council, *Final Report on the Experimental Scheme for the Training and Employment of Dental Auxiliaries*, London: General Dental Council, Great Britain, 1966.

[2] *Brief* submitted to the Ad Hoc Committee on Dental Auxiliaries by the Dental Association of Prince Edward Island, 1968.

hygienist may, after 3.5 years experience, take a 14-week course which enables him to perform the following additional duties[1]:

Advanced Procedures Delegated to a Clinical Technician [Therapist]

Clinical Field	Delegated Procedures
Operative Dentistry	Application of the rubber dam. Selecting, contouring, placing and removal of matrix bands. Packing, carving and finishing amalgam restorations. Placing and finishing silicate and acrylic restorations. Placing, carving and finishing various types of temporary cements.
Partial Denture Prosthodontics	Impressions for study casts. Final impressions. Simple interocclusal records. Tooth shade selection.
Complete Denture Prosthodontics	Preliminary impressions. Preliminary bite relations (carving and fitting of bite blocks prior to inter-occlusal registration by the dental officer).
Periodontics*	Periodontal packs. Home care instructions.

*These procedures are in addition to prophylaxis and scaling for which the basic clinical technician was previously trained.

The Dental Profession Ordinance of the Yukon Territory was amended on December 4, 1964, and the duties of the dental hygienists were expanded so that now their permissible duties and the auspices under which they may practise resemble those of the United Kingdom dental auxiliary. It is not without interest that the first "dental hygienist" employed under these conditions was a New Zealand trained dental nurse and all subsequent Yukon "dental hygienists" have been trained either as dental nurses in New Zealand or as dental auxiliaries in the United Kingdom.

[1] Baird, K.M., D.D.S., Shillington, G.B., D.D.S., and Protheroe, D.H., D.D.S., "Pilot Study on the Advanced Training and Employment of Auxiliary Personnel in the Royal Canadian Dental Corps: Preliminary Report", *J. Canad. Dent. Assn.*, 28:627-638, 1962.

e) *Dental Mechanics*

In addition to the generally accepted auxiliary personnel, dental mechanics in some provinces serve the public independently of the dental profession. The Provinces of British Columbia and Alberta have enacted legislation which allows Dental Mechanics to perform limited prosthetic procedures directly for the public. In both provinces, the direct services are restricted to fabrication and repair of full upper and lower dentures. British Columbia also permits structural repairs to removable prostheses.

Some dental mechanics in other provinces also deal directly with the public. They are seeking the same privileges accorded to their counterparts in British Columbia and Alberta. The extent to which they provide direct services in the field of removable dental prostheses is unknown.

It is not possible to ascertain, at the moment, the extent to which more services have been supplied by the dental mechanics to the public which would not have been provided by dentists. Dental mechanics in some provinces have made these statements in their briefs to the Committee:

> While an exact figure cannot be given, it is safe to say that up to the present time over 150,000 citizens in Saskatchewan have availed themselves of the services provided by denturists.[1]
>
> Undoubtedly the denturists serve a minimum of 10,000 customers per year.[2]

In a separate in-person presentation to the Committee the representative of the Governing Board of L'Association des Techniciens Dentaires de la Province de Québec made it quite clear that his association believed that its members should be given the legal right to provide some services directly to the public. He felt that the present system of dealing with the public indirectly through the dental practitioner is unsatisfactory and he cited a number of types of frequently occurring instances to support this contention. A member of the Governing Board of Dental Technicians of Ontario contended that the patients are frequently referred to them in their laboratories usually some distance from the dental office. The dentist's prescription carried by the patient may simply state, "Phone me", instead of a detailed written prescription. The technician in fact deals "directly with the patient" for all but the financial aspects.[3]

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[1] *Brief* of the Denturist Society of Saskatchewan, submitted to the Ad Hoc Committee on Dental Auxiliaries, 1969.

[2] *Brief* of the Association of Dental Technicians (Denturists) in Manitoba, submitted to the members of the Legislature (of Manitoba), 1966.

[3] In-person presentation of the representatives of the Governing Board of Dental Technicians of Ontario, general comments.

Contributions to Dental Health Through Use of Auxiliary Personnel: Three Case Studies

The very considerable contribution of the recognized auxiliaries in freeing North American dentists to devote more chair time to the patient has been described previously (p.9). There is considerable evidence that *personnel with expanded duties* can make a significant contribution to the reduction of dental needs and maintenance of dental health. Three illustrative studies are presented:

1. *Brazil*

Aimores[1] designed a program in Brazil to illustrate the benefits which could accrue from an incremental care plan using dental assistants who would, in addition to their chairside duties, administer topical sodium fluoride following a simple prophylaxis. Neither hygienists nor assistants were available, hence, the training of dental assistants was planned as a three-month course in a selected school of dentistry. The experience gained in the first course resulted in a decision that a shorter, in-service training course would suit the program's needs. Such a course was designed by the Special Public Health Service. The incremental care and prevention program provided by dentists and assistants in school clinics dramatically improved the 'filled' component of the decayed, missing and filled index (D.M.F.) of dental health and a reduction of 40 per cent in anticipated carious lesions in this pilot population (Figure 1).

The conclusion that expansion of the dental assistant's duties to encompass a rubber cup prophylaxis and application of fluorides is practical and beneficial to dental patients is inescapable, particularly when hygienists remain in short supply and/or restrict their employment to urban centres.

2. *Sweden*

Berggren[2] reported that chairside assistants in Sweden were trained to supervise school children during the 5 times yearly application of a 0.5 per cent solution of sodium fluoride with the tooth brush. As a result the annual treatment time needed per child in an eight-year study was reduced from 3 hours, 14 minutes to 1 hour, 24 minutes. In another study, boys exhibited a 39.3 per cent reduction in filled surfaces and girls a 44.7 per cent reduction using the same procedures.

3. *New Zealand*

Two reports illustrate that the New Zealand Dental Nurse in the school dental program and dentists in the adolescent dental care scheme for

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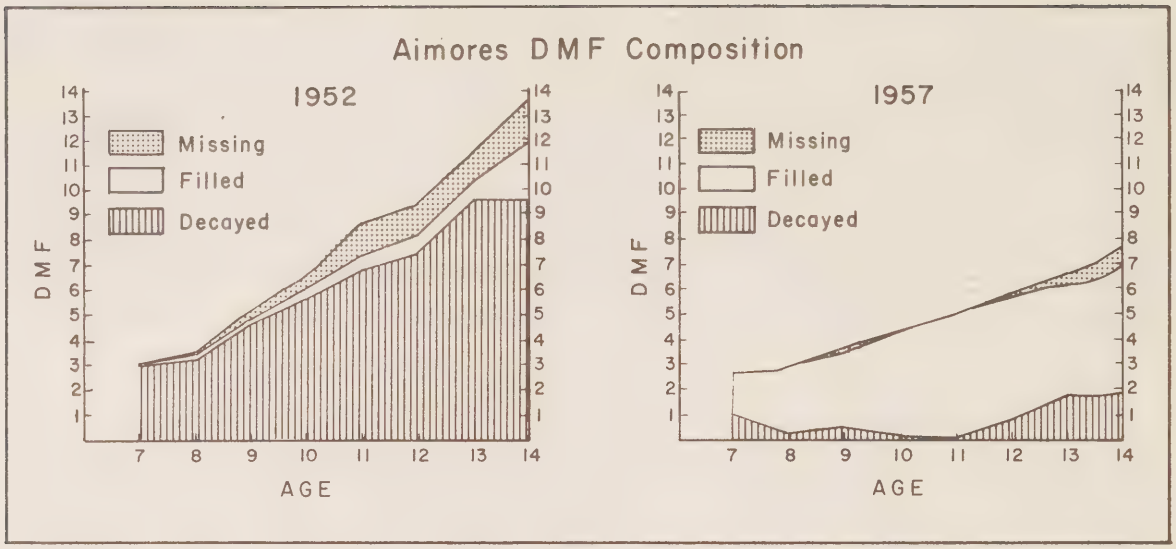
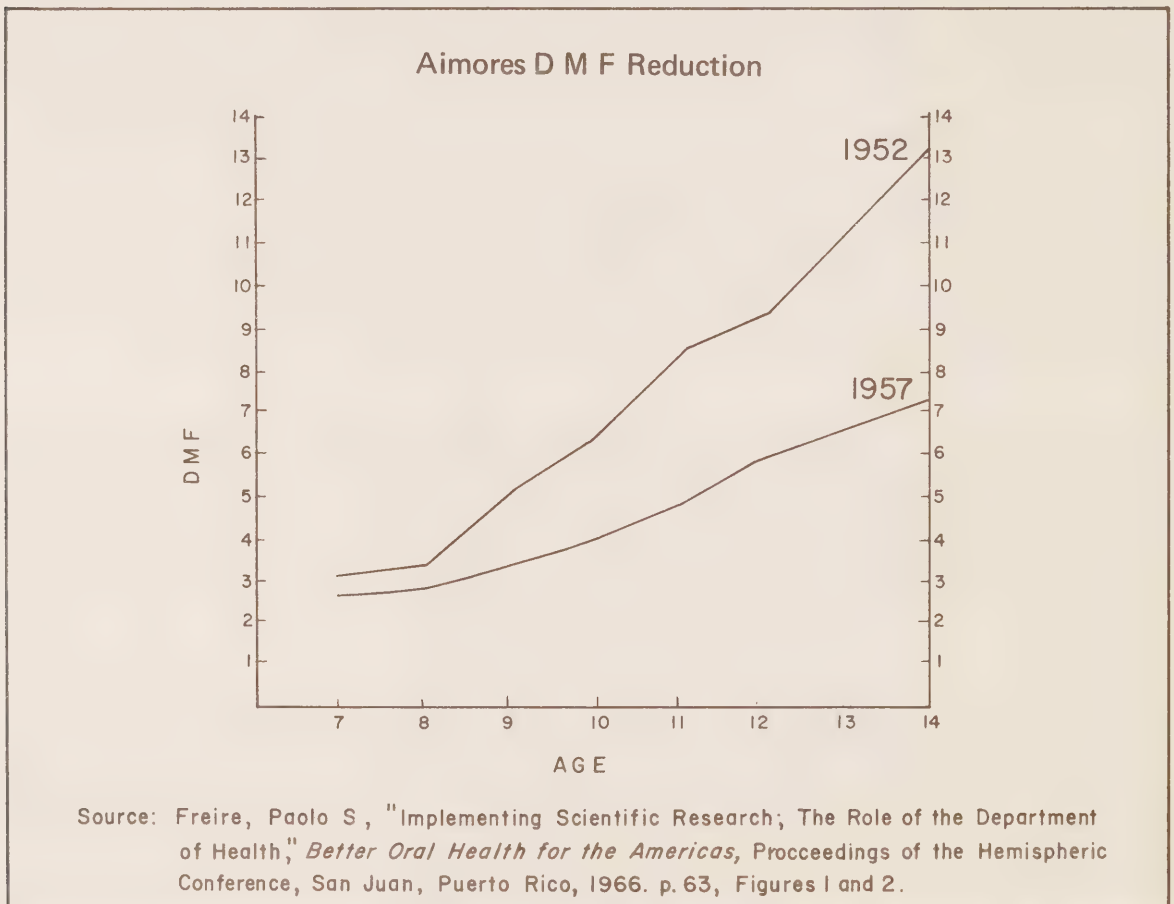
[1] Freire, Paolo S., *op. cit.*, p. 62.

[2] Berggren, H., "Topical Fluorides (including Dentifrices)", *Int. Dent. J.*, 17:40, 1967.





Source: Freire, Paolo S., "Implementing Scientific Research; The Role of the Department of Health," *Better Oral Health for the Americas,* Proceedings of the Hemispheric Conference, San Juan, Puerto Rico, 1966. p. 63, Figures I and 2.

FIGURE 1

children age 14-16 have had a decided impact on the dental health of young New Zealanders (Figure 2). The first report, by Walsh[1], indicated that the number of extractions per year per 100 patients fell from 407 in 1922 to 19 in 1960 (Figure 3). Children in New Zealand had more filled teeth and fewer decayed teeth than their counterparts in the United States (Figure 4). Over 80 per cent of teeth of the New Zealand children that needed fillings were filled.

An indication of the important effect of this dental care is reflected in the change in state of the dental health of 18-year old New Zealand military recruits between 1952 and 1958 as shown in Figure 5.

The other study by Beck[2] supports this and shows that the percentage of individuals in samples of the New Zealand population aged 18-21 wearing or requiring dentures was reduced from 28.5% to 8.0% in the years 1952 to 1962-64 (Figure 6). By comparison, the percentages for male other ranks, female and officer candidates entering the Canadian Forces in the same age group were 35.4%, 42.5% and 17.5% respectively[3]. The same study illustrated that between 55 and 70 per cent of D.M.F. teeth of young New Zealand adults were filled (Figure 7). By comparison, only 20 per cent of D.M.F. teeth of Canadian Forces recruits were filled (Table 1).

These studies are sufficient to illustrate that dental auxiliaries with expanded duties used in conjunction with organized programs have significantly improved the dental health of children and young adults in Brazil, Sweden and New Zealand.

Acceptability of New Types of Dental Auxiliaries

Whenever attempts are made to introduce changes into any facet of social life they are met with resistance from some quarter. The case of attempted changes in the organization of traditional dental practice is no exception and wherever and whenever attempts have been made to introduce a new occupational member into the dental team they have been met with considerable resistance on the part of some segments of the profession. Yet, within a short time after the introduction of such changes, members of the dental profession in the countries concerned find it difficult to understand how the profession got along without the new occupational group and they are in constant demand. This is as true of female dental assistants as it is of New Zealand type dental nurses or of dental hygienists in North America.

There is considerable evidence from those countries wherein the New Zealand type dental nurse, including the United Kingdom dental auxiliary,

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[1] Walsh, J.P., "The Dental Nurse", *Amer. Col. Dent. J.*, 32:62-69, 1965.

[2] New Zealand Department of Health, *The Dental Health Status of the New Zealand Population in Late Adolescence and Young Adulthood*. Compiled by Donald J. Beck, B.D.S., M.Sc., Department of Health, Wellington, N.Z., 1968, pp. 65-68.

[3] Director-General, Canadian Forces Dental Services, *The Dental Condition of the Canadian Forces*, Ottawa, 1969.

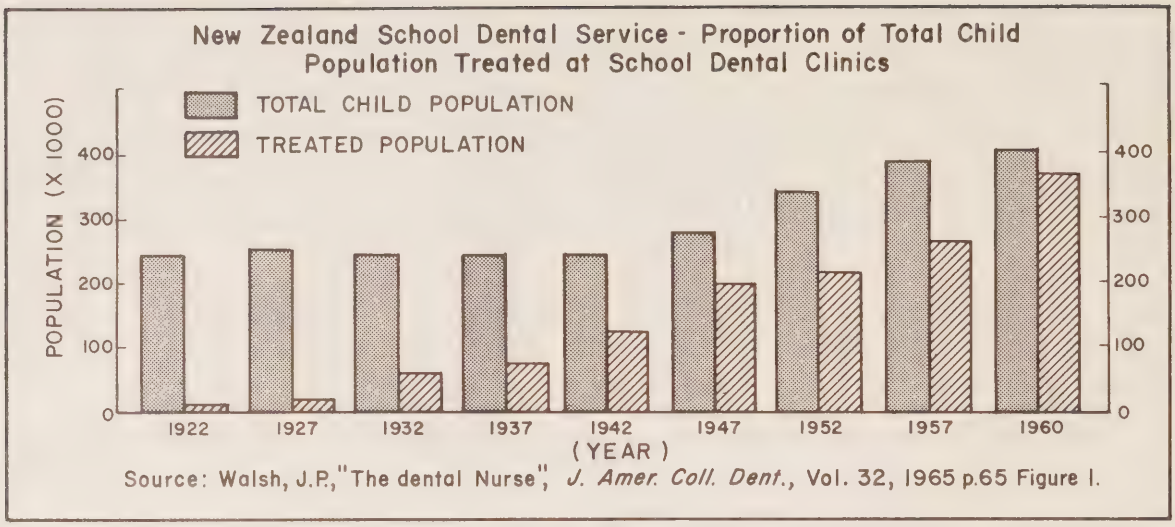


FIGURE 2

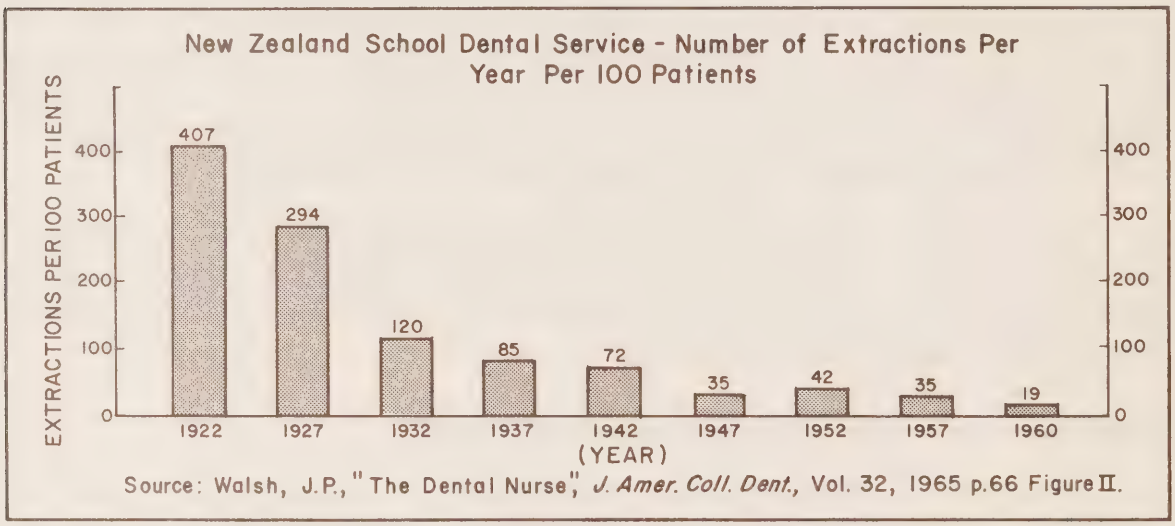


FIGURE 3

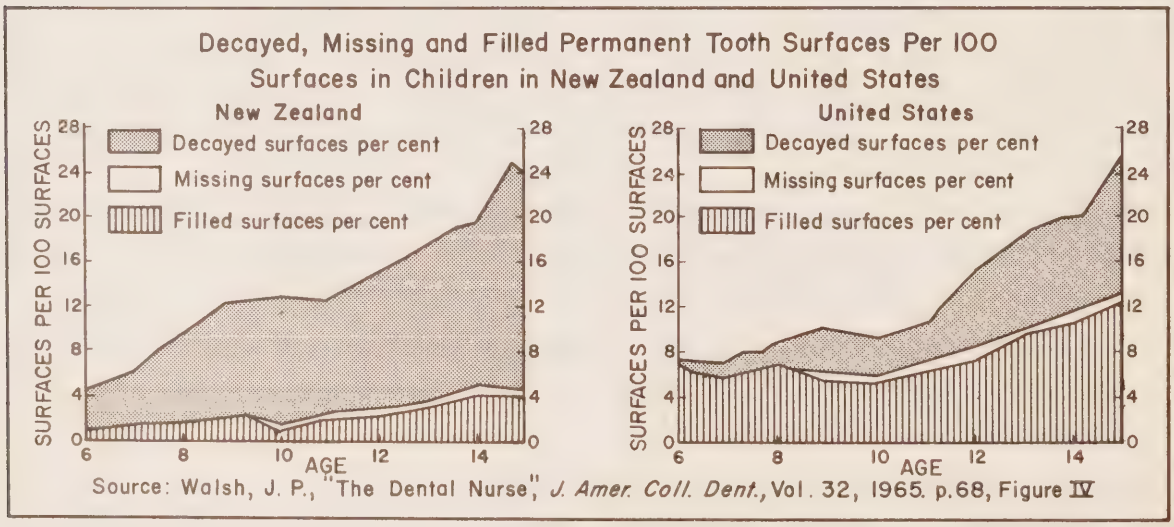
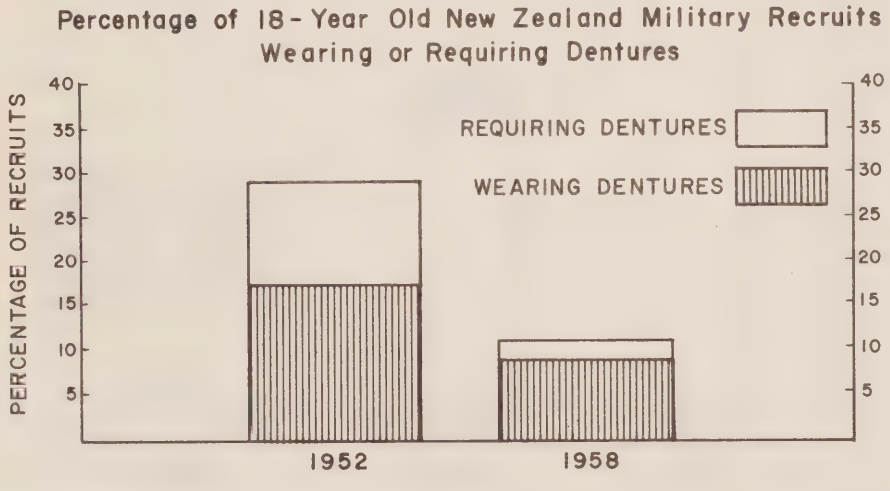


FIGURE 4

have been introduced, that after some initial resistance the profession has accepted these auxiliaries. Equally important, of course, is that these auxiliaries have also been accepted by the population being served. The following data should be sufficient to support the contention that, in general, wherever introduced both the profession and the general public have accepted the New Zealand type dental nurse.

1. The General Dental Council of the United Kingdom in their *Final Report on the Experimental Scheme for the Training and Employment of Dental Auxiliaries, 1966* state in their Summary of Conclusion that:[1]

> dental auxiliaries are well accepted by children and many employing authorities consider that their special value lies in introducing very young children to dentistry in circumstances which make dental treatment acceptable or even attractive to them. Dental auxiliaries are also well accepted by parents, by teachers in schools and by dentists working for local authorities.

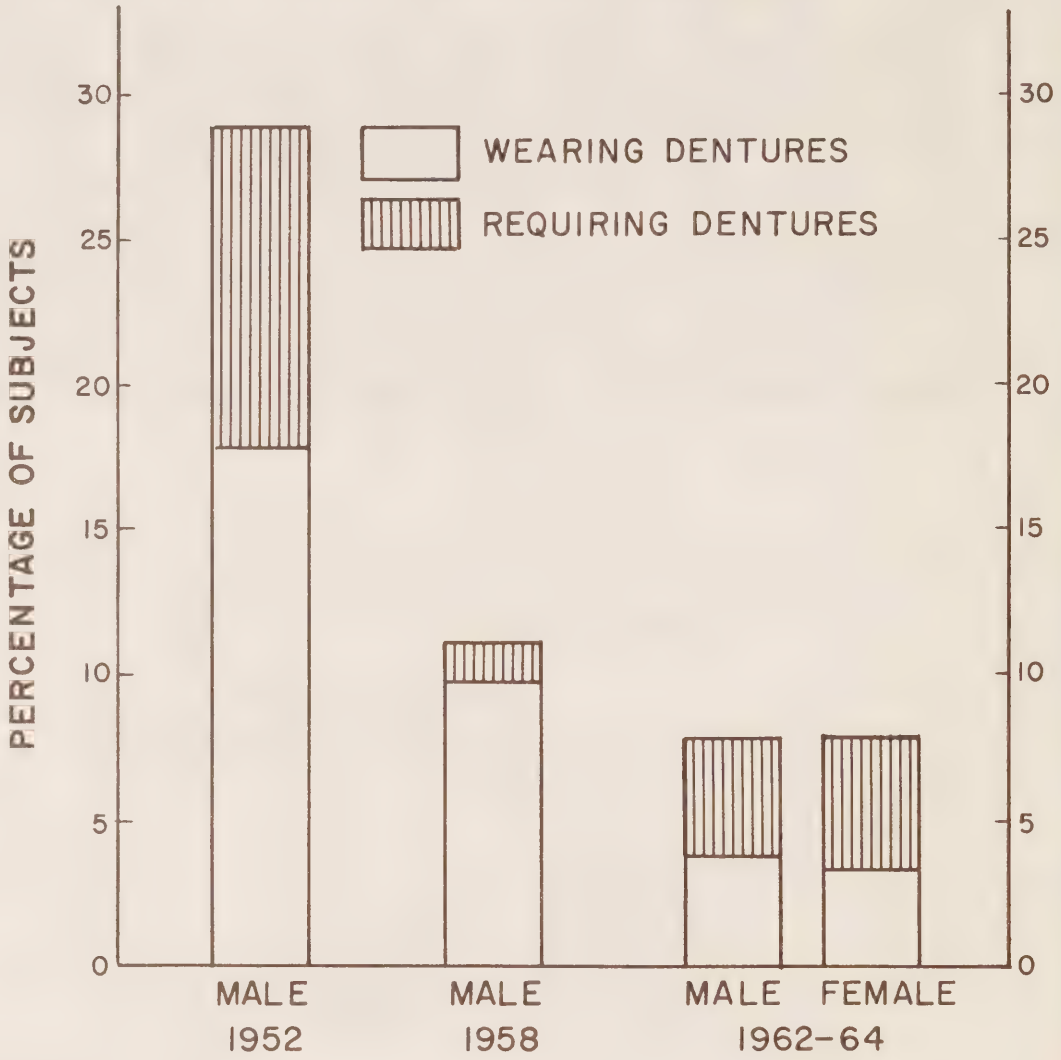


Source: Walsh, J. P., "The Dental Nurse," *J. Amer. Coll. Dent.*, Vol. 32, 1965. p.67, Figure III

FIGURE 5

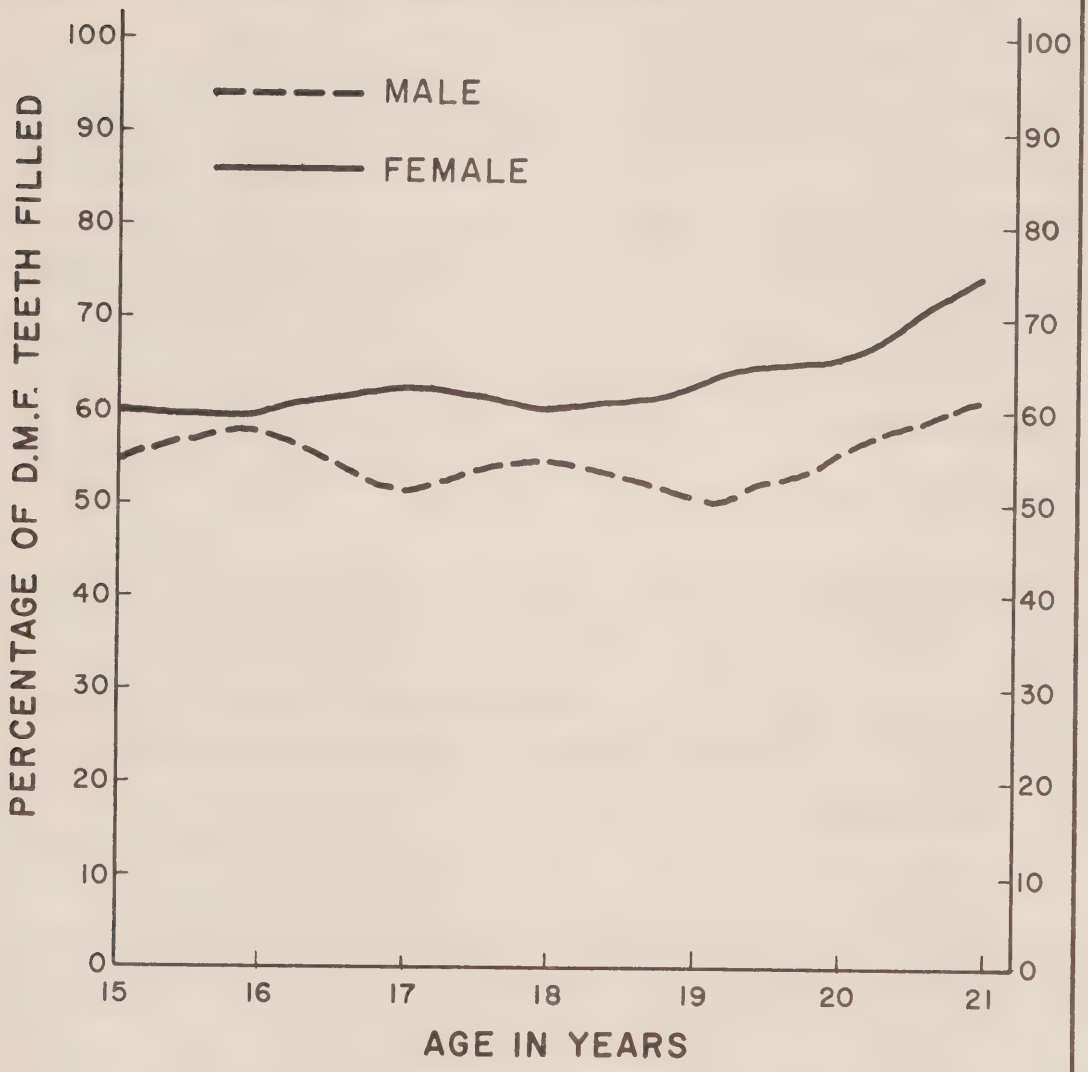
[1] General Dental Council, *Final Report on the Experimental Scheme for the Training and Employment of Dental Auxiliaries*, London, 1966, p. 19.

Percentage of Samples of New Zealand Population Aged 18-21 Wearing or Requiring Denture(s)-1952, 1958 and 1962-64



Source: New Zealand, Department of Health, *The Dental Health Status of the New Zealand Population in Late Adolescence and Young Adulthood*. Compiled by Donald J. Beck, B.D.S., M. Sc., Department of Health, Wellington, N.Z., 1968. p.68, Figure XI.

FIGURE 6



Source: New Zealand, Department of Health, *The Dental Health Status of the New Zealand Population in Late Adolescence and Young Adulthood.* Compiled by Donald J. Beck, B.D.S., M. Sc., Department of Health, Wellington, N.Z., 1968. p. 52, Figure VI.

FIGURE 7

TABLE 1

CANADIAN FORCES RECRUITS – MALE, OTHER RANKS

NUMBER OF D.M.F. TEETH

Province	Decayed	Missing	Filled	Total D.M.F.
British Columbia	7.53	3.35	4.92	15.80
Alberta	6.73	2.90	3.41	13.04
Manitoba	7.49	5.18	2.08	14.75
Ontario	5.98	3.24	3.79	13.01
Quebec	7.34	6.51	1.97	15.82
Maritimes	7.94	5.75	1.43	15.12
Average (Canada)	7.17	4.48	2.93	14.59
Per Cent of D.M.F.	49.14	30.74	20.12	100.00

Source: The Director-General, The Dental Condition of the Canadian Forces, Canadian Forces Dental Services, 1969, p. 23.

2. *Dental Auxiliary Personnel*, Report of the Auxiliary Personnel Committee of the British Dental Association wherein they report:[1]

> **Acceptability of dental auxiliaries**
>
> There is no doubt that auxiliaries are well accepted by children and their parents. It is important that it should always be clear to parents when an auxiliary is on the staff of a clinic and it should also be apparent which surgery she is occupying. With very few exceptions dental officers are agreeable to working with dental auxiliaries and it can be anticipated that within a few years local authorities who do not offer prospective dental officers the opportunity of working with an auxiliary will be less successful in recruiting dental officers.

3. Berman[2] (1963) in his World Health Organization Report on a visit to Malaya wrote:

> It is of interest to note that all the dental work I viewed at random (not a scientific survey) was of a very high standard and that the

[1] "Dental Ancillary Personnel", Report of the Committee. *Supplement to the British Dental Journal*, Vol. 124:11, 1968.

[2] Berman, M.S., "Utilization of the Dental Auxiliary – School Dental Nurse", *Int. Dent. J.*, 19:33, 1969.

> nurses, both in the dental school and in the dental clinics, displayed a high degree of discipline, tidiness and professional presentation. The dental nurses were greatly appreciated by those parents I spoke to and especially by the dental officers supervising the main treatment clinics. Many of them were anxious to explain how they could not have coped with the treatment demands of the area without the aid of the auxiliary.

4. "The New Zealand Report", *New Zealand Dental Nurses*, Report of United Kingdom Dental Mission, HMSO. *British Dental Journal*, Nov. 7, 1950, wherein it is stated:[1]

> It is hardly surprising to learn that the original proposal [Dental Nurses, 1920] was received, with mixed feelings, by the profession in New Zealand. It nevertheless received the approval of the New Zealand Dental Association [1921] and the Mission record that, after meeting the Council of the Association and many individual members of the profession, they "were left in no doubt that the scheme has the full support of the profession".

5. In a review of the findings noted in the numerous surveys of the New Zealand Dental Nurse by many researchers, viz., Fulton, Dunning, Gruebbel, United Kingdom Dental Mission, Australian Delegation, Dean R.G.Ellis, David Barmes, Province of Saskatchewan, Striffler and Gillespie state:[2]

> Almost all of the reports except that of Gruebbel have indicated that the public and the profession in New Zealand enthusiastically supported the Dental Nurse.

6. *The Australian Dental Association News Bulletin* of June, 1968, contains the Association's National Dental Health Policy wherein is contained the following:

> 4.4.1.1 School Dental Nurses
>
> Whereas it has now been demonstrated conclusively that School Dental Nurses can be trained to perform a restricted range of clinical operations efficiently, safely and to a high standard, it is – RESOLVED THAT School Dental Nurses be included as Auxiliary Personnel in The Dental Health Team.

The foregoing excerpts serve to illustrate the acceptance of this subprofessional group by both the public and the profession.

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[1] "The New Zealand Report", Editorial, *Brit, Dent. J.*, 89-211, 1950.

[2] Striffler and Gillespie, *op. cit.*, pp. 49-50.

Influence of Organized Dental Programs on Demand For Care

There is no doubt that adjustments to the dental health care delivery system could influence not only the dental health status of Canadians but also the need for vastly increased numbers of dentists and auxiliaries. Attention to the design of programs to meet the dental health needs of Canadians is a challenge for professional groups, dental faculties and governmental agencies.

McFarlane[1] indicated that other factors such as sex, age, education, area of residence and social class have such a profound influence on the demand for care that removal of the financial barrier *alone* would not increase demand to a satisfactory level. This statement was confirmed by a study of a large dental insurance program[2] in which only 27 per cent of families of semi-skilled or unskilled workers used their pre-paid and readily available coverage over 5 years, while 50 to 60 per cent of professional, sales, skilled and executive employees used the plan. (Figure 8). All services were provided in private practitioners' offices.

A Survey of Dental Health Care Received in 1967[3] indicated that 2,830,000 of 6,830,000 Canadian children visited the dentist (45 per cent). As the result of this low utilization of services only 33 per cent of the total decayed, missing and filled teeth of 5 to 13-year old children are filled teeth.[4]

Dental health improves when dental care is readily available and regular utilization of services is high. Three countries, Norway, Sweden, and New Zealand all have achieved high utilization rates by children using somewhat different methods but all three have a successful school dental service. For example, Norway started a school dental program for all grade school children in urban communities financed by general tax funds in 1917.[5] By 1936, the benefits were extended to rural grade school children. Children up to 18 years of age were fully covered by 1950 and older young adults received subsidized care. Children may attend offices of private practitioners or school clinics. As the result of these programs, 83 per cent of all Norwegian children were receiving dental treatment by the mid 1950's.

Sweden adopted a somewhat similar program and salaried dentists care for 70 per cent of the child population annually in a school program. Significantly, both Norway and Sweden have very favourable dentist: population ratios of 1:1300 and 1:1200.

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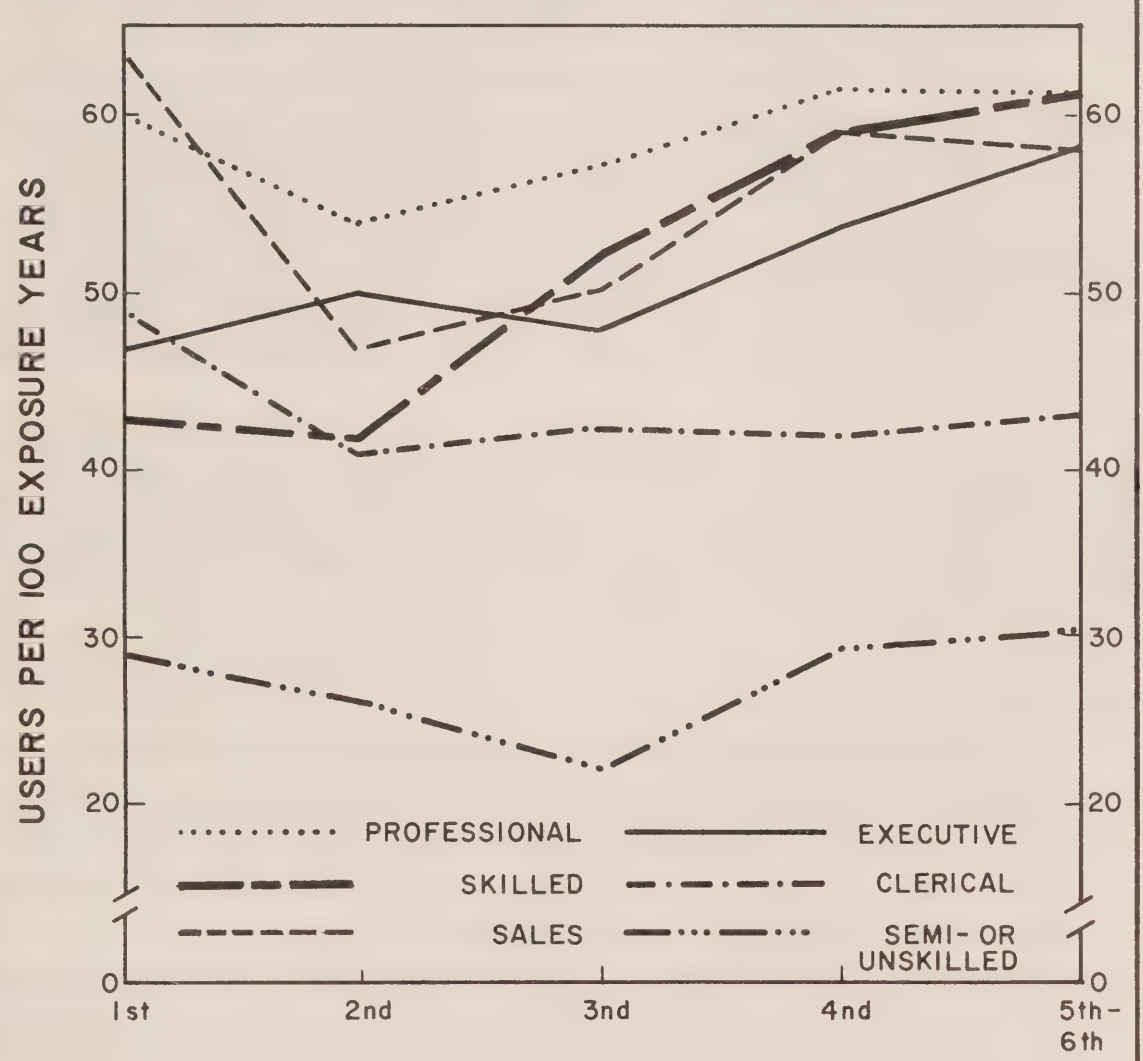
[1] McFarlane, Bruce A., *Dental Manpower in Canada*, pp. 75-117.

[2] Avnet, H.H., and Nikias, M.K., *Insured Dental Care Group Health Dental Insurance Inc.*, p. 79 (1967).

[3] Canada Bureau of Statistics, "Dental Care in Canada, 1967". *Dominion Bureau of Statistics Daily Bulletin*, April 22, 1970.

[4] Hunt, A.M., *Projected Needs for Dentists in Ontario*, Background report prepared for the Manpower Committee of the Ontario Council on Health, (mimeo.). 1968.

[5] Hammons, P.E., and Jamison, H.C., "Expanded functions for dental auxiliaries", *J. Amer. Dent. Assn.*, 75:658-672, 1967.



Source: Avnet, H.H. and Nikias, M.K., *Insured Dental Care Group Health Dental Insurance Inc.* New York, Group Health Dental Insurance, Inc., 1967.

FIGURE 8

The dental health care delivery system in New Zealand makes use of school clinics and also employs an operative auxiliary. In that country over 90 per cent of the total child population to age 13.5 are cared for semi-annually in the school dental clinics[1]. In addition, utilization remains high in comparison to Canada in the publicly-sponsored program for adolescents for children 13.5 to 16 years of age conducted in private offices and later in the free enterprise, private practice system[2]. The effective operator (professionals and operating auxiliaries): population ratio is 1:1250[3].

Children 5 to 15 years of age were offered free annual dental care in a mobile clinic setting close to schools in Richmond, Indiana.[4,5] Ninety-six per cent of the school child population was examined and 83 per cent accepted the care while another 13 per cent continued to receive care in private dental offices. A team of one dentist, a clerk and 1.5 dental assistants performed the services. The dramatic improvement in dental health in which the proportions of filled teeth increased from approximately 15 per cent to over 85 per cent of the total Decayed Missing and Filled teeth index (DMF) is illustrated in Figure 9.

A similar study conducted in Gainsville, Florida, a fluoridated community, produced even better results because the numbers of new decayed teeth were reduced to the extent that one dentist could care for the dental treatment needs of approximately twice the number of children in the Richmond study[6].

A number of conclusions can be derived from the aforementioned studies:

1. Good dental health depends on a high utilization rate of dental services.
2. Utilization of dental services by lower income groups and their families tend to remain low despite removal of financial barriers, unless effective dental health educational and promotional programs and methods of delivery of dental health care are expanded.
3. Addition of school dental services to the private practice arrangement greatly increases demand for dental care by children; and children previously at a disadvantage because of social conditions over which they had no control may now receive the required care.

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[1] Walsh, J.P., *op. cit.*

[2] Beck, D.J., *op. cit.*

[3] Barmes, D.E., "The Need for Auxiliaries in Developed as well as in Developing Countries", *Int. Dent. J.*, 19:1-11, 1969.

[4] Waterman, G.E., and Knutson, J.W., "Studies on Dental Care Services for Children. First and Second Treatment Series, Richmond, Ind.," *Public Health Rep.*, 68-583-589, 1953.

[5] Waterman, G.E., and Knutson, J.W., "Studies on Dental Care Services for Children. Third and Fourth Treatment Series, Richmond, Ind.," *Public Health Rep.*, 69-247-254, 1954.

[6] Frank, J.E., Law, F.E., Spitz, G.S., and Galagon, D.J., "School Dental Care in a Community with Controlled Fluoridation", *Public Health Rep.*, 79-113-124, 1964.

4. Programs which have added school dental services to the system of delivery of dental care have improved the dental health of children dramatically.
5. Young adults of all classes demand much more dental service as the result of exposure to regular dental care programs.
6. The addition of school or other alternative programs to the traditional private practice system does not remove patients from the dental office but actually increases the demand for care in the latter setting by persons who would not become acquainted with the value of good dental care otherwise.
7. Countries which have developed successful dental programs for children have required dentist:population or professional plus operating auxiliary: population[1] ratios in the order of 1:1200 to meet the demand for care;
8. The high rate of success of some of the programs depended upon the use of auxiliaries with expanded duties to achieve the necessary professional plus operating auxiliary:population ratio.

Dental Auxiliaries: The Canadian Experience

A number of provinces, faced with what they considered to be unsatisfactory conditions in the provision of dental services to the public and cognizant of the findings reported above, have introduced legislation in some cases and experimental schemes in others so that the duties of their present body of auxiliary personnel may be expanded. In some instances, particularly where dental technicians or mechanics were concerned, these changes came about with little or no assistance from the dental profession and, indeed, usually in the face of strong opposition from the profession.

Certified Dental Mechanics in British Columbia and Alberta have been given the right by their respective legislatures to deal directly with the public.

The dental profession in British Columbia has recommended that the duties of the dental hygienists and the dental assistants be expanded and courses for the dental assistants are already under way to this end.

In Saskatchewan a pilot project has been introduced to assess the practicability and feasibility of providing school dental health services using a mobile travelling clinic manned by a dental health team comprised of a dentist, three dental assistants with expanded duties, two United Kingdom-type Auxiliaries and a secretary/receptionist. An experimental program using specially trained dental hygienists to perform similar duties to those carried out by the Army therapist has also been introduced in Prince Edward Island.

In the Yukon an Ordinance to Amend the Dental Profession Ordinance was assented to on December 4, 1964, enabling the dentists to authorize the

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[1] Terminology as used in Barmes, D.E., *op. cit.*

dental hygienists (after additional training) to perform all the present duties of a dental hygienist and, in addition, to perform[1]

(i) the extraction of deciduous teeth under local infiltration anaesthesia, and

(ii) the undertaking of dental fillings.

These data indicate that already 22% of the Canadian population live in areas where they may receive services from auxiliaries with expanded duties, albeit, in some cases the programs are still of an experimental nature[2].

The Committee on the Healing Arts of the Province of Ontario reported its findings during the final stages of writing of this report. The following excerpts from their Report indicate the views of that Committee:

> The Committee was not convinced by the spokesmen for dentistry who claimed there were serious enough reasons why it was impractical to create in Ontario a dental worker with the functions and responsibilities of the New Zealand dental nurse and the British dental nurse,. . . . .[3]
>
> Taking into account on the one hand the recommendations of the Royal Commission on Health Services supporting the introduction of the dental assistant, and on the other the opposition to such a measure of the dental profession in Ontario, we have not made a specific recommendation regarding the introduction of such an assistant at this time. But as there may well be definite benefits to the employment of such auxiliaries, as indicated by the experience of the New Zealand and British programs, we feel this matter should be pursued. A careful assessment of the results of existing programs should be undertaken and their applicability to the Ontario situation studied. If the introduction of such an auxiliary is undertaken, it is our view that there need not be a pilot project, and that the implementation might be proceeded with directly.
>
> Recommendation
>
> 31 That the Ontario Council of Health examine the possible utilization of the dental nurse along the lines of the New Zealand or English type and report its findings to the Department of Health with recommendations for specific measures.[4]

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[1] Ordinance of the Yukon Territory, *op. cit.*

[2] The population data were obtained from *Canadian Statistical Review*, Vol. 45, No. 3, March 1970, Table 1, p. 18. If only the population of Alberta, British Columbia and the Yukon where non-experimental schemes are in operation the proportion is reduced to 17%.

[3] *Report of the Committee on the Healing Arts*, Queen's Printer, Toronto: Vol. 3, 1970, p. 57.

[4] *Report of the Committee on the Healing Arts*, Queen's Printer, Toronto: Vol. 2, 1970, p. 119.

Professor House, author of the background report on Dentistry in Ontario for the Committee on the Healing Arts expressed the opinion that:

> The use of this type of auxiliary should be the subject of considerable study. In the initial stages, however, the study should concern itself less with whether an auxiliary such as the New Zealand dental nurse can perform the duties claimed for her, and more with the economics of her use in the provision of public dental health services. The direct involvement of this type of auxiliary in the comprehensive treatment of the patient seems to be a more effective way of combatting any assumed shortage of dentists.[1]

His main concern seemed to be related to the ability of the profession to absorb a significant number of auxiliaries in what is essentially an unorganized system of delivering dental health services. Nevertheless, he concluded that:

> There can be little doubt that it is possible to design a training program and specify conditions under which the auxiliary will operate so that the quality of service will be maintained.[2]

The data contained in the foregoing sections of this report provide us with ample reasons why the Department of National Health and Welfare, through the Dominion Council of Health and on recommendation of the Advisory Committee on Dental Health to the Minister of National Health and Welfare, struck this Ad Hoc Committee "to study all aspects of dental auxiliaries" at this point in time in Canada. The Canadian Dental Association, who in their Statement on the Recommendations of the Royal Commission on Health Services felt the formation of a somewhat similar Committee was desirable, was invited to participate from the inception of the Committee and was active in its formation.

In the development of the provision of dental services some countries have looked at the development of dental auxiliaries as part of a determined attack on national dental disease problems. Other countries have looked on the development of auxiliary personnel mainly as a convenience to the dental profession. In the light of the data presented above, this Committee accepts the former view and directs its recommendations to that end.

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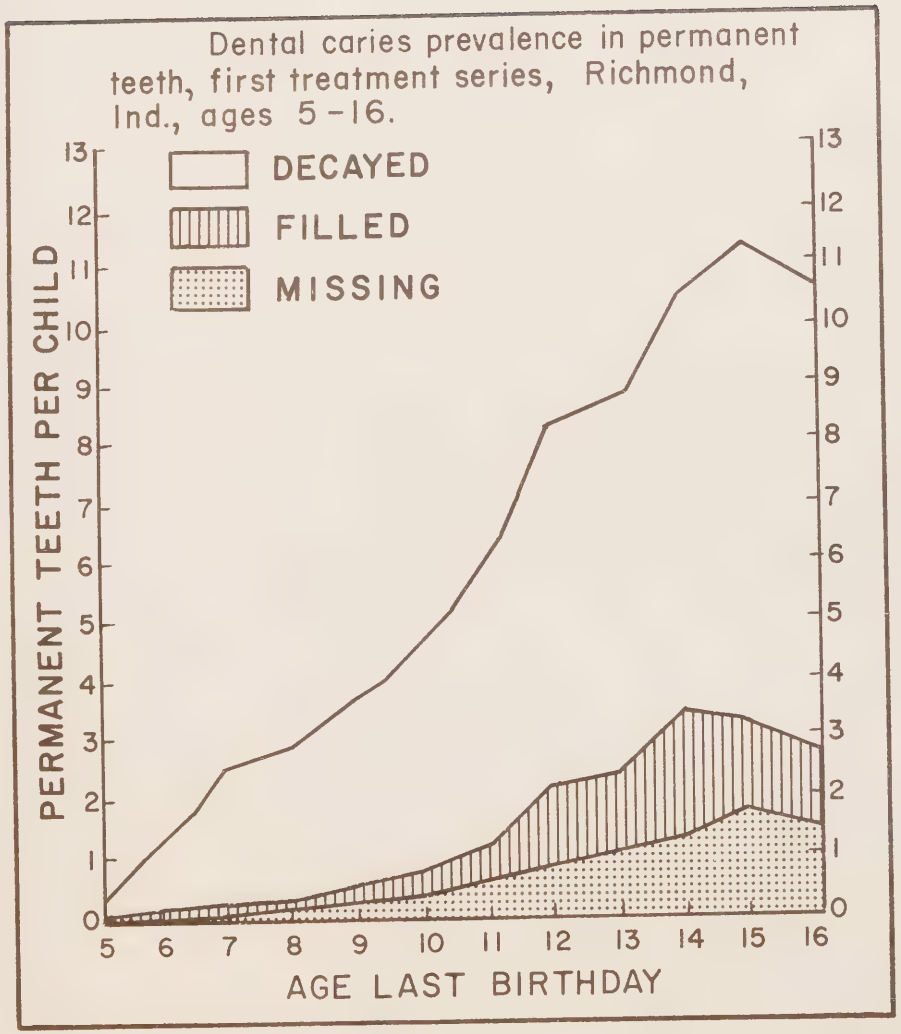
[1] House, R.K., *Dentistry in Ontario*, A Study for the Committee on the Healing Arts, Queen's Printer, Toronto: 1970, p. 85.

[2] House, R.K., *op. cit.*, p. 88.


Dental caries prevalence in permanent teeth, first treatment series, Richmond, Ind., ages 5 - 16.
DECAYED
FILLED
MISSING
PERMANENT TEETH PER CHILD
AGE LAST BIRTHDAY
0 1 2 3 4 5 6 7 8 9 10 11 12 13
5 6 7 8 9 10 11 12 13 14 15 16

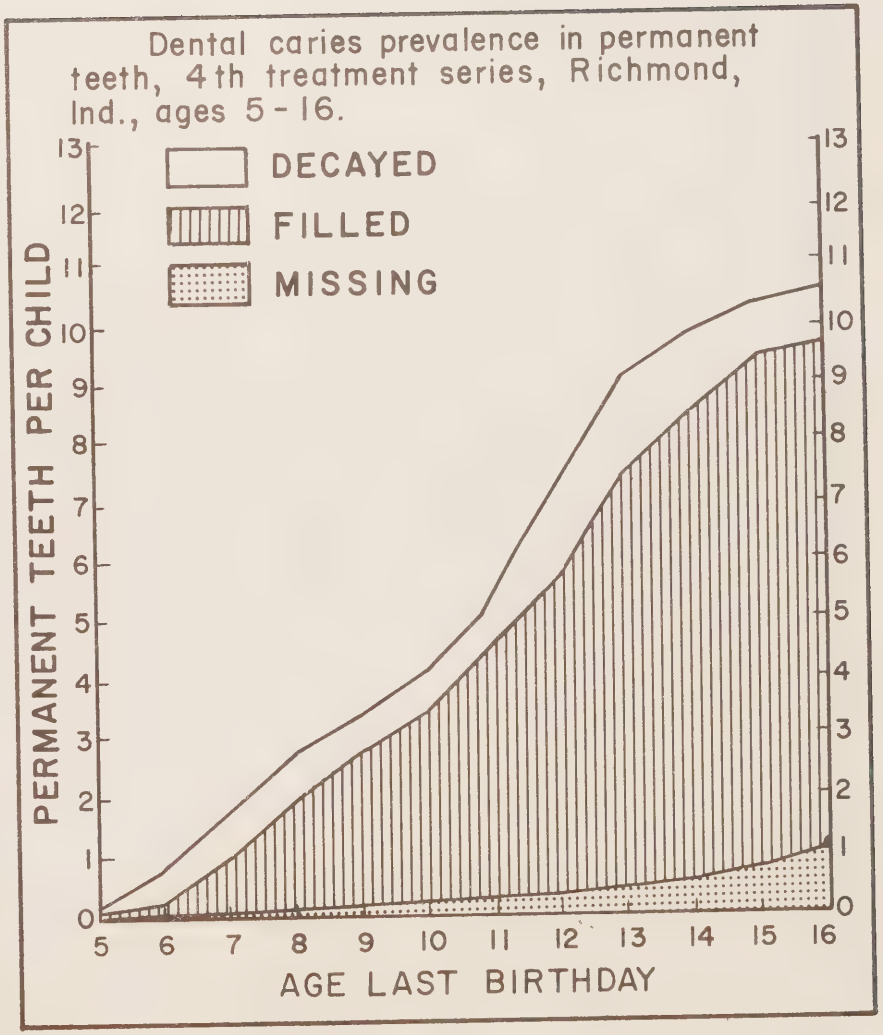

Dental caries prevalence in permanent teeth, 4th treatment series, Richmond, Ind., ages 5 - 16.
DECAYED
FILLED
MISSING
PERMANENT TEETH PER CHILD
AGE LAST BIRTHDAY
0 1 2 3 4 5 6 7 8 9 10 11 12 13
5 6 7 8 9 10 11 12 13 14 15 16

FIGURE 9

CHAPTER III

DISCUSSION AND RECOMMENDATIONS

The Ad Hoc Committee on Dental Auxiliaries having probed extensively the feelings of the dental professional organizations and licensing bodies, dental auxiliary groups and provincial Departments of Health and having examined the present dental health status of Canadians has decided on the basis of strong reservations on the part of most of these organizations that a new auxiliary should not be created. However, the permissible duties of the dental hygienist should be expanded to meet the needs of the Canadian population. In addition, duties of the chairside assistant should encompass many of the present routine technical tasks of the dental hygienist. The relationship of some dental technicians to the public should also be altered. We are acutely aware of the very considerable contribution presently made by hygienists to the fields of dental health education and prevention. These contributions should continue to be emphasized. Only through a well rounded program of dental health education, prevention and treatment will dental personnel be able to cope with the exacting demands of dental health care in the future. The expanded duties recommended below for both dental assistants and hygienists should enhance the educational and preventive aspects of their work. In addition, the recommendations provide for increasingly diversified roles for these auxiliaries in special fields of employment. While the Committee recognizes some disadvantages of serial listing of duties for dental auxiliaries it feels that too much responsibility will be placed on the dentist if he alone must judge the limits of the auxiliaries' capabilities to undertake duties for which he or she has not been trained. Hence, the following list of duties is meant to serve as a guide for legislators and educational authorities.

The Ad Hoc Committee on Dental Auxiliaries makes the following recommendations:

DUTIES OF AUXILIARIES

Recommendation 1

That the duties of dental assistants be defined in *Provincial Dental Acts* as including the present commonly accepted duties such as:

(a) patient reception

(b) preparation of the working area

(c) sterilization of instruments

(d) handing instruments to the dentist
(e) preparation of filling materials
(f) developing and mounting of radiograms
(g) performance of simple laboratory procedures
(h) recording data on patients' record cards
(i) bookkeeping
(j) rendering and receiving accounts
(k) ordering and receiving office supplies
(l) making appointments
(m) other extra-oral duties as prescribed by the dentist.

In addition, dental assistants who have passed an accredited[1] training program should be licensed to perform the following tasks:

(a) taking impressions for study casts only
(b) placing and removing rubber dams
(c) placing and removing matrix bands
(d) placing of temporary restorations
(e) removing dentures
(f) rubber cup prophylaxis
(g) applying anti-cariogenic agents to teeth
(h) supervision of other forms of topical anti-cariogenic agents
(i) exposure and processing of radiograms and photographs
(j) other duties which may from time to time be approved by provincial licensing bodies.

Recommendation 2

That the duties of dental hygienists be defined in *Provincial Dental Acts* as including:

(a) preliminary examination of patients and provision to the dentist of dental health data
(b) scaling and polishing of teeth
(c) topical application of anti-cariogenic agents
(d) patient and community education in oral health
(e) exposing and developing radiograms
(f) performing extra-oral duties designated by the dentist
(g) administration of first aid
(h) application of the rubber dam.

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[1] See Recommendations 24 and 27.

In addition dental hygienists whose accredited[1] training programs included training in the following tasks should be licensed to perform the following additional duties:

(a) application of temporary sedative dressings to hard or soft tissues

(b) taking impressions for study models (this is not intended to preclude the possibility that individual provincial licensing bodies may wish to recognize by formal examination and certification dental hygienists with additional education and training for the various specialties in dentistry whose duties may include the taking of impressions for the actual fabrication of dental appliances or prostheses)

(c) repairing artificial dentures

(d) placing and removal of matrix bands

(e) placing of othodontic bands

(f) placing and finishing amalgam restorations

(g) placing and finishing of silicate and plastic restorations

(h) placing and finishing temporary cements

(i) cavity preparation and restoration of teeth by plastic type of filling material

(j) other duties which may from time to time be approved by provincial licensing bodies and for which the dental hygienist has been trained.

Recommendation 3

That the duties of dental technicians be defined in *Provincial Dental Acts* as including: the fabrication, reproduction or repair of fixed or removable prosthetic appliances, crowns or bridges, as prescribed by a dentist.

Recommendation 4

That those dental technicians who have completed an accredited[2] educational and training program may, on prescription by a dentist, perform the additional duties of fabrication and fitting of complete dentures and/or the fabrication and fitting of orthodontic bands directly for the public.

Recommendation 5

That dental technicians who have completed the requirements for the performance of the additional duties noted in recommendation 4 be known as *Dental Technologists*[3].

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[1] See Recommendations 24 and 27.

[2] See Recommendations 17, 18, 19, 20, 24, 27 and 39.

[3] This term is in keeping with the terminology used for personnel in other applied sciences, e.g., Engineering Technologist, Medical Technologist, Architectural Technologist, and usually describes a senior sub-professional group in the Field. See the *Report of the Committee on the Healing Arts,* Vol. 2, Toronto: Queen's Printer, 1970, Chapter 18, "Health Technologies", pp. 412-431, for an extended discussion of a number of technologists in the health field.

Recommendation 6

That *Dental Technologists* will work in dental offices and clinics under the supervision of a dentist.

The problem of establishing the Canadian Forces *Dental Therapist* in a civilian setting following his retirement has been brought to the attention of this Committee. From all reports received by the Committee the Canadian Forces dental therapist after some years experience in the Forces is capable of undertaking all duties of the dental hygienist with the same high degree of competence. The number of dental therapists released from the Canadian Forces is unlikely to be more than 2 or 3 per annum in the foreseeable future.

Recommendation 7

That provincial licensing bodies deem the training and experience of the Canadian Forces Dental Therapist to be equivalent to that of the dental hygienist and permit him or her to be registered in the province as a dental hygienist.

EDUCATIONAL FACILITIES

1. *Dental Assistants*

At the present time, dental assistants in Canada are trained in five major ways, viz:[1]

(i) on-the-job training by individual dentists,

(ii) evening courses offered by local dental societies,

(iii) courses offered at the secondary school level,

(iv) courses offered in post-secondary school institutions,

(v) courses conducted in the Canadian Forces.

While it is difficult to obtain exact data on details of all these programs they are listed above in descending order in terms of the numbers trained under the five schemes. These schemes are not mutually exclusive, however, and many who are trained on-the-job also participate in the evening courses and needless to say those who have been trained in the secondary schools, in evening courses, or the Canadian Forces, also receive on-the-job training from the dentists under whom they are employed to acclimatize them to their mode of practice.

When some of the dental hygienists' more minor duties and tasks are passed on to the dental assistants, as outlined in *Recommendation 1,* the assistants will, of necessity, have to be trained to perform these additional tasks. This would mean the establishment of a few full-time training programs to train new recruits at the high school level and a number of evening courses sponsored jointly by educational authorities and local dental

[1] McFarlane, B.A., *Dental Manpower in Canada,* pp. 159-163.

societies to upgrade the present dental assistants and provide instruction for mature students. To this end, provincially sponsored, nationally supported and recognized certification examinations should be instituted in order to maintain minimum standards across provincial boundaries and make it possible for the geographically mobile to make full use of their skills in Canada wherever they may be resident. Training program accreditation and legislation will become extremely important if dental assistants are permitted to perform minor intra-oral duties.

There are a number of places where new formal training programs for dental assistants may be established, the two most important, and probably most accessible to the greatest number of recruits are:

(i) in the secondary schools, particularly those offering vocational classes

(ii) in the community, regional or junior colleges of Canada outside of Quebec, the CEGEPS of Quebec and the technological and vocational institutes of Western Canada.

The dental schools at the universities are not likely to be deemed suitable for the training and education of dental assistants since the entrance qualifications required for these courses would be below that normally required for university entrance. Applicants who meet university entrance requirements are more likely to consider dentistry or dental hygiene as possible career choices. Proprietary schools for financial gain are deemed to be inappropriate for this task and the present day method of on-the-job training, while it is the most common mode of training, leaves much to be desired since it depends so greatly on the ability of individual dentists to teach idiosyncratic modes and methods of dental practice, and is very time-consuming of valuable professional time in the private office. As the duties of the dental assistants are broadened, on-the-job training would only add further to the tasks of the already over-burdened professional. Needless to say, no matter how or under what auspices the new dental assistants are trained, individual practitioners will always have to provide some on-the-job training to acclimatize new employees to their individual mode of professional practice.

There are advantages and disadvantages associated with each of the two institutional arrangements mentioned above, that is, the secondary schools and the post-secondary institutions.

A factor in favour of having this type of training program in the secondary school system is that all communities in Canada, whether urban or rural, have a local secondary school or, at worst, one within easy commuting distance. It also has positive recruitment advantages since it is possible that a number of high school students, who would normally drop out of school due to lack of interest in academic programs among other things, might well be induced to continue their education if the prospect of a career with some substance in the health services was made available to them[1] . The present

[1]This aspect of recruitment will become particularly important as openings are made available in a School Dental Program and the dental assistants become members of an extended dental team.

courses in operation are in the third and fourth years of high school, those periods when a high proportion of school dropouts take place, since by this time most of these students will have reached or passed the minimum school leaving age.

A disadvantage, of course, is that this training program will frequently be somewhat removed from the training environment of other dental and other health auxiliaries. This will entail, among other things, costly demonstration and other equipment for the sole purpose of training the dental assistants, whereas if the training were associated with the training of the dental hygienists the costly apparatus could be shared. A further disadvantage is that any teachers in this program, whether graduated dental hygienists or dental assistants will be expected to meet general pedagogical standards set by the Association of Secondary School Teachers or some such similar authority. None of these problems are insurmountable, of course, and provisions could be made, in co-operation with provincial educational authorities, for special summer programs to train teachers. Clinical training for assistants and other auxiliaries could be provided in special clinics constructed for service and auxiliary training. In addition, dentists through the co-operation of local Dental Societies could offer their facilities as a type of short internship program for the dental assistant student-trainees.

2. *Dental Hygienists*

a) Diploma Programs

At present all Canadian trained Hygienist' diplomates are trained in Faculties of Dentistry. Projections made by the Canadian Dental Association indicate the number of places for hygienists entering the first year of the programs may increase from the present 150 to 350 by 1980[1]. However, if one pictures the hygienist as the main intra-oral auxiliary and anticipates an expansion in her duties, her overall effectiveness will depend on the ability of dentists, in public and private spheres, to obtain her services. It will be difficult to further increase the number of hygienists by using the traditional university education sites. New training sites will be needed.

The newly proposed sites should be the Community Colleges, Institutes of Technology, the CEGEPS, or equivalent post-secondary educational level institutions. Such courses have been in effect in the United States for many years. Graduates of the better American schools are considered to be comparable to the university diplomates.

At the Community College and other post-secondary institutions, sections of the academic program could be presented in core courses suitable for medical, dental and other health sciences auxiliary personnel, such as physical or occupational therapists and medical technologists. Such a study of partially combined health technology courses has been conducted in the

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[1] "Canadian Dental Association Dental Health Plan for Children", *Transactions of the Canadian Dental Association*. Toronto: Canadian Dental Association. 1968, p. 231.

State of New York (Appendix B). Clinical or laboratory training could be presented in facilities centred in hospital or community clinics or institutes of medical technology. The advantages in terms of staff and space procurement are obvious.

Under no circumstances should training establishments below post-secondary educational level be permitted for the education and training of dental hygienists. In view of *Recommendation 2* (p. 30), it is obvious that the dental profession will be called upon to play a very important, crucial and active role in the education, both academic and clinical, of the dental hygienists with expanded duties.

b) University Programs

Assuming that in the future the greatest number of diploma hygienists will be educated in the post-secondary non-university institutions, existing university courses should be expanded by one academic year to the Bachelor's level to train the many teachers who will be needed to staff the high schools, universities, and colleges, and for many specialized functions in public health fields.

3. *Dental Technicians*

a) Dental Technicians

Educational programs for dental technicians, including those now known as dental mechanics, are more widespread than those for dental assistants but a universal system of training does not prevail in Canada as it does for dental hygienists. The majority of provincial Dental Technicians' Acts require apprenticeship under a registered dental laboratory technician for 4 to 5 years before examination and/or registration is granted. In addition, some Dental Technician Associations demand or wish to implement a period of theoretical studies within the apprenticeship term. Formal courses of instruction are now available in a few post-secondary institutes, viz., the Edouard Montpetit CEGEP in Longueuil, Quebec; the George Brown College of Applied Arts and Technology, Toronto; the Northern Alberta Institute of Technology, Edmonton; and the Vancouver Vocational Institute, Vancouver.

Dental Technician Governing Boards administering Acts should be encouraged to request provincial educational authorities to expand educational facilities for dental technicians at the post-secondary school level with a view to supplementing, and eventually replacing, the apprenticeship system of training. Standards and programs can be established and maintained better in a formal academic environment. In addition, the financing and staffing of training laboratories is more easily accomplished in this setting.

b) Dental Technicians with Expanded Duties: The Dental Technologist

When legislation was passed to enable dental mechanics to work directly for the public in British Columbia and Alberta respectively, a

number of technicians who were already providing such services were granted a certificate to carry on their operations. Until recently, Alberta candidates had to participate in a five-year apprenticeship and take examinations to become a dental mechanic. At the request of the Alberta Certified Dental Mechanics Society, the Northern Alberta Institute has formulated a program of studies for dental mechanics who will make full dentures directly for the public[1]. Length of the course of study is two academic years, each of seven months, followed by a two-year apprenticeship in dental laboratories (a total of four years training). In view of these expanded duties in British Columbia and Alberta and the roles which *Recommendation 4* has suggested that the dental technician with expanded duties, the *Dental Technologist*[2], should play it seems obvious to this Committee that considerable advantages can accrue to a training scheme which is developed in consort with the other dental and medical auxiliary occupations.

The Ad Hoc Committee on Dental Auxiliaries makes the following recommendations:

Recommendation 8

That the preferred academic educational settings for all Dental Assistant educational and training programs are:

(i) the third and fourth years of the secondary school, and,

(ii) the post-secondary institutes.

Proprietary schools are deemed inappropriate for this task.

Recommendation 9

That alternative academic educational settings for upgrading the present body of *Dental Assistants* and the training of *mature* students should be evening courses and/or summer programs under the aegis of the high schools or post-secondary institutions. The programs should be of sufficient length to meet accreditation requirements.

Recommendation 10

That the subsequent or concurrent clinical training of the *Dental Assistants* be located, in order of preference, in one or more of the following four settings:

(i) approved dental educational and service clinics

(ii) faculties of dentistry

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[1] *Brief* of the Alberta Certified Dental Mechanics and Public Denturists Society of British Columbia submitted to the Ad Hoc Committee on Dental Auxiliaries, 1969.

[2] cf. p. 44.

(iii) clinical teaching faculties developed in non-university educational settings

(iv) offices of dentists participating in the training program.

Recommendation 11

That for the present the university diploma programs for *Dental Hygienists* be retained and new diploma programs be established at other post-secondary institutions.

Recommendation 12

That *Dental Hygiene* diploma programs at the universities be phased out when the programs at the other post-secondary institutions are permanently established.

Recommendation 13

That Bachelor's degree programs in *Dental Hygiene Education* be developed at the universities in order to provide the teaching and supervisory manpower for the *new* programs noted in Recommendations 8, 9, 10 and 11.

Recommendation 14

That provisions for some credit in degree programs in *Dental Hygiene Education* be arranged with the universities so that graduates from the diploma programs in *Dental Hygiene* in the post-secondary institutions may progress to a higher level of education without hindrance.

Recommendation 15

That the clinical component of the *Dental Hygienist's* training at the new post-secondary institutions be located in:

(i) approved central dental and educational service clinics; and/or,

(ii) faculties of dentistry.

Recommendation 16

That refresher and retraining programs for hygienists be developed by schools teaching dental hygiene.

Recommendation 17

That the preferred academic educational setting for both the *Dental Technicians* and the *Dental Technologists* (dental technicians with expanded duties) be the post-secondary institutions.

Recommendation 18

That the laboratory and/or clinical training of the *Dental Technicians* and the *Dental Technologists* be located in order of preference, in one or more of the following four settings:

(i) post-secondary institutions with adequate laboratory facilities

(ii) approved dental and educational service clinics

(iii) accredited dental laboratories

(iv) offices of dentists participating in the training program.

Recommendation 19

That the present system of on-the-job apprenticeship be phased out when sufficient post-secondary programs for educating and training *Dental Technicians* and *Dental Technologists* are available.

Recommendation 20

That shorter upgrading programs, as short as the equivalent of one full-time academic year, be devised in the post-secondary educational system for *Dental Technicians* and others governed by provincial Dental Technicians' Acts who wish to improve their qualifications to the level of *Registered Dental Technologist*.

Recommendation 21

That dental students work with experienced dental assistants, hygienists, and dental technicians to make them more aware of the usefulness of dental auxiliaries. That is, to foster the team approach to dental care.

LEGISLATION

Legislation governing the activities of dental assistants, dental hygienists, dental technicians, dental mechanics and dental nurses (New Zealand type) varies widely from province to province in Canada. In some provinces legislation related to some or all dental auxiliaries is conspicuous by its absence. This state of affairs has caused confusion as to responsibility for conduct, scope of duties, and restriction of mobility of personnel.

1. *Dental Assistants*

At present, legislation governing dental assistants has been enacted only in British Columbia and Saskatchewan. The Ontario Dental Nurses and Assistants Association (ODNAA) grants certification to dental assistants following completion of courses recognized by the Royal College of Dental Surgeons of Ontario plus other requirements as set out by the ODNAA. The Canadian Dental Association suggests a similar arrangement between the C.D.A. and the Canadian Dental Nurses and Assistants Association.

The dental assistant (with the exception of those in Saskatchewan and British Columbia) cannot perform intra-oral services because the dentist, dental hygienist, or dental mechanic (British Columbia and Alberta) are the only persons permitted by law to perform these services.

A proposed Act Respecting Dental Auxiliaries in Manitoba in 1969 sought to define the training examination and responsibilities of dental assistants, dental hygienists, dental technicians and dental mechanics if it were enacted. The Act had many features which would have ensured adequate control of auxiliaries and at the same time provide flexibility which would permit expansion of duties and participation of auxiliaries in discussions affecting their destiny.

2. *Dental Hygienists*

Most but not all provinces have Acts and By-laws governing Dental Hygienists. The Canadian Dental Association has established minimum requirements for the approval of a School of Dental Hygiene[1] and the Council on Education accredits schools of dental hygiene. Hygienists are certified by the appropriate provincial licensing body. At present, limits imposed on the duties of hygienists in certain provinces dictate that hygienists migrating from provinces where the limits are more liberal are restricted from performing duties for which they have been trained. The Auxiliary Services Committee of the Canadian Dental Association felt that listings of permitted services in Dental Acts should be dispensed with. To avoid such listing the Board of Governors of the Canadian Dental Association passed the following resolution at its July 1970 Meeting:[2]

> Whereas the services of dental auxiliaries are essential to the efficient delivery of dental health care, and
>
> Whereas the licensed dentist must assume the ultimate responsibility for the welfare of his patient and competent performance of all dental services rendered at his direction, regardless of the personnel involved in the delivery of these services,
>
> Therefore be it resolved that it is the prerogative of the dentist, subject to his licensing authority, to delegate to formally trained auxiliaries over whom he exerts effective supervision and control such duties as do not require the professional knowledge and skill of the dentist.

In view of *Recommendation 2* in this report, interpretation of the phrase "as do not require the professional competence or skill of the dentist" must not be interpreted so narrowly that it negates this Committee's Recom-

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[1] Canadian Dental Association. "Minimum Requirements for the Approval of a School of Dental Hygiene", *Transactions of the Canadian Dental Association*. Toronto: Canadian Dental Association, 1966. pp. 52-55.

[2] *Proceedings, Board of Governors*, Canadian Dental Association, Winnipeg, July, 1970.

mendations to delegate to dental hygienists expanded duties which have been performed for forty-eight years by the New Zealand Dental Nurse.

It has been brought to the attention of this Committee that dental auxiliaries wish to participate in discussions which directly affect their own occupations. Of particular interest to this point is a recent recommendation from the Committee on the Healing Arts, Ontario, which states[1]

> . . . . .the licensing of dental hygienists cease to be a responsibility of the Royal College of Dental Surgeons of Ontario.

The Canadian Dental Association endorsed the wishes of the dental hygienists in this regard by passing the following resolution at its 1970 Meeting:[2]

> Whereas regulations governing the practice of dental hygiene are currently encompassed in provincial dental acts, and
>
> Whereas examinations, licensing and disciplining of dental hygienists is administered by provincial dental licensing boards,
>
> Therefore be it resolved that the Canadian Dental Association supports the principle of a close liaison being maintained between the dental hygienists and the provincial licensing boards, when any action is contemplated by the provincial licensing boards which would have a direct effect on the dental hygienists.

The Ad Hoc Committee feels that similar privileges of participation should be extended to all groups of dental auxiliaries.

The Committee notes, in addition, that Canadian hygienists, on moving to some provinces, must write the provincial examinations in spite of the fact that they have graduated from schools accredited by the Canadian Dental Association.

3. *Dental Technicians*

All of the provinces except Newfoundland have Dental Technician Acts governing the scope of activities of dental technicians. In Newfoundland, they are covered under *The Dental Act, 1968*. In general, the by-laws governing the dental technicians vary little from province to province and with the exception of the Provinces of British Columbia and Alberta the dental technicians are permitted by law to work only on receipt of a dentist's prescription. In British Columbia the registered dental mechanics may deal directly with the public without prescription if they have "received from the person for whom the services or service are or is to be performed" a Certificate of Oral Health "completed and signed by a dentist or duly qualified medical practitioner". Since 1965, the certified dental mechanics in Alberta have been permitted to deal directly with the public without the

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[1] *Report of the Committee on the Healing Arts*, Vol. 2, *op. cit.*, p. 147.

[2] *Proceedings, Board of Governors*, Canadian Dental Association, Winnipeg, July, 1970.

necessity of a Certificate of Oral Health. In view of this Committee's *Recommendations 4 and 6*, the Acts governing the dental technicians' scope of activities will require amendments.

The Ad Hoc Committee has noted the lack of regulations concerning dental assistants, the inability of dental hygienists to move easily from province to province in Canada, the lack of standardized training programs for dental technicians and the concern of certain bodies such as the Committee on the Healing Arts, Ontario, about the lack of representation by these auxiliaries on Boards administering Acts governing their own affairs. Therefore, we group the recommendations concerning all of the above named auxiliaries as follows:

Recommendation 22

That a *Canadian Council on Dental Auxiliaries* be established.

Recommendation 23

That the Membership of the *Canadian Council on Dental Auxiliaries* consist of representatives from each of the Provincial Councils on Dental Auxiliaries and representatives, including dentists, named by the Minister of National Health and Welfare.

Recommendation 24

That the *Canadian Council on Dental Auxiliaries* deal with matters such as national certification and accreditation of educational and training institutions for dental auxiliaries.

Recommendation 25

That each province establish a *Council on Dental Auxiliaries*.

Recommendation 26

That membership on each provincial *Council on Dental Auxiliaries* consist of 11 members to include:

3 Dental Auxiliaries (one from each of the Dental Hygiene, Dental Technician and Technology, and Dental Assistants Boards)

3 Dentists (one appointed from each of the following: the Provincial Dental Association, the Provincial Licensing Board, and the Provincial Department of Public Health)

3 Laymen (appointed by the Provincial Minister of Health)

1 Member appointed by the Minister of Education,

The Minister of Health or his designate.

Recommendation 27

That there be Provincial Acts regulating *Dental Auxiliaries* and the Acts contain provisions for the regulation of:

(i) admission and registration
(ii) qualification
(iii) education and training
(iv) examinations
(v) fees
(vi) complaints procedures
(vii) illegal practice
(viii) organization of clinics where necessary
(ix) establishment of training schools
(x) definition of rightful duties.

Recommendation 28

That three *Boards* be established within the terms of the Provincial Dental Auxiliaries' Act in each province to administer the appropriate sections of the Act pertaining to *Dental Hygienists, Dental Technicians* and *Dental Technologists*, and *Dental Assistants*.

Recommendation 29

That the Membership on each of the three provincial *Boards* (*the Dental Hygienist Board, the Dental Technician* and *Dental Technologist Board*, and *the Dental Assistant Board*) should consist of a majority of Members elected by the corporate members of each group and some lay representatives.

Recommendation 30

That each provincial *Board* of *Dental Hygienists, Dental Technicians* and *Dental Technologists*, and *Dental Assistants* will be responsible for administering their appropriate sections of the Provincial *Dental Auxiliaries Act*.

RESPONSIBILITIES OF THE CANADIAN AND PROVINCIAL GOVERNMENTS IN IMPROVING THE DENTAL HEALTH OF CANADIANS

The Ad Hoc Committee on Dental Auxiliaries has noted that although many Canadians are recipients of dental services of high quality, at the same time an equal number of Canadians are at a disadvantage by reasons of income, education, social class, age and residence in poorly serviced areas and receive a much lower standard of dental care, if any at all[1] . In addition, having noted the benefits of organized childrens' dental programs in

[1] Hunt, A.M., *Projected Needs for Dentists in Ontario, op. cit.* See also McFarlane, Bruce A., *Dental Manpower in Canada*, op. cit., esp. pp. 75-117.

promoting good natural dental health[1], the Committee recognizes that service outlets additional to private practice must be provided in order to overcome the disadvantages noted above as speedily as possible.

The Ad Hoc Committee on Dental Auxiliaries believes that Canadian Governments, federal and provincial, and the dental profession must co-operate in formulating plans to improve the general dental health status of the Canadian public.

One area of major concern which will also require realistic support by both the government concerned and the dental profession is a continuing program of operational research in the dental health care delivery systems involving auxiliaries.

The following recommendations are related to the need for organized dental programs and the role of dental auxiliaries in various settings for the delivery of dental health care:

Recommendation 31

That dental care in its broadest sense be offered to all Canadians incorporating the same principles of quality control and financing as medical care as soon as feasible.

Recommendation 32

That in order to work towards this end (*Recommendation 31*), a *National Dental Program for Children* encompassing all known methods of prevention, education, and treatment, should be started *immediately*.

Recommendation 33

That the *National Dental Program for Children* should start with younger children and encompass new age groups on an annual basis until school leaving age children have been included, at which time the whole Canadian population should be included as noted in *Recommendation 31*.

Recommendation 34

That school dental services or alternately other community dental services, where school dental services cannot be provided, be made available for all children up to school leaving age.

Recommendation 35

That the financial barrier to the attainment of dental care by eligible groups of children be removed in the public health and private practice spheres of dentistry.

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[1] Cf, pp. 31-35 this report.

Recommendation 36

That parents have the option of sending their eligible children to private dental practitioners or the public dental service.

Recommendation 37

That the Minister of National Health and Welfare and the Ministers of the respective Provincial Departments of Health be responsible in their own jurisdiction for the planning, financing and operation of dental programs supported by public funds.

Recommendation 38

That the responsibilities of the Ministers of Health detailed in *Recommendation 37* be delegated responsibilities of strengthened Dental Health Divisions in the Departments of Health where the expertise to deal with the complexities of dental care can be employed.

The Ad Hoc Committee on Dental Auxiliaries has been perturbed by the manner whereby the decision was made to license dental mechanics in British Columbia and Alberta. It considers that it was most inappropriate for those provinces to license persons with dubious qualifications and a record of illegal practice to perform their services directly with the public. The Committee members submit that the claims that this step would reduce the costs of prosthetic services and would increase service in rural areas are largely unsupported. There is evidence that after this legal decision was made the great majority of dental mechanics practised in the large cities and the cost of their services rose because they had to maintain practice establishments with higher overhead costs. While it may appear that the trend towards licensing of dental mechanics is irreversible and is imminent in several provinces due to the precedent set in Alberta and British Columbia the Committee Members feel that our *Recommendations 3, 4, 5, 6, 17, 18, 19, 20, 21 and 22 to 30* inclusive will affect the educational and legislative control necessary to ensure that health standards for the public are maintained and protected. To further safeguard the public interest the following *Recommendation* is proposed to establish uniform national standards or practice by Dental Technologists.

Recommendation 39

That provinces, wishing to allow dental technologists to provide limited services for the public under supervision of a dentist duly licensed to practice dentistry in the province, should not invoke the 'grandfather clause' for the present body of dental technicians who wish to enter the field. Instead we recommend that they be required to attend the two-year academic training program or the short upgrading programs, mentioned in *Recommendations 17, 18 and 20*, and, in addition, pass the examinations set by the educational authorities and meet all other requirements necessary for licensure.

The Ad Hoc Committee has recommended above a large expansion in the number of duties which all classes of dental auxiliaries may perform in order to increase dental services for the public. However, it does foresee difficulties in inducing the dental profession to employ and house additional auxiliaries in their present, restricted, high cost dental-office space. If dental auxiliaries are to be trained in sufficient numbers to meet the demand for dental care now and in the future when prepayment dental health plans become effective, it will be necessary to develop the physical resources for the effective utilization of these auxiliaries.

Recommendation 40

That the Federal and Provincial Governments devise incentives for dentists to develop the team approach to dentistry by expanding dental office space to employ additional numbers of dental auxiliaries either in private offices or in private or public clinics.

Recommendation 41

That the Federal and Provincial Governments provide funds to construct and equip facilities and to provide staff for dental auxiliaries' training programs.

Recommendation 42

That the Federal and Provincial Governments provide bursary assistance to students enrolled in accredited dental auxiliary training programs.

Recommendation 43

That the Federal and Provincial Governments stimulate and support operational and other continuing research designed to improve the contribution of dental auxiliaries to the dental health care delivery systems.

CONCLUDING REMARKS

The members of the Ad Hoc Committee on Dental Auxiliaries are fully cognizant of the fact that when and if their recommendations are accepted and put into force the traditional role of the dental practitioner in Canada will be changed and the style of life of dental practice will be different in the future. The new role of the dentist will be cast in a professional mould more in keeping with the roles played by other professionals today, for example, the physicians. That is, the dentist will become more a diagnostician, clinical supervisor, dental team director, dental educator, and dental administrator. Some of the dentist's traditional mechanical and manual skills will be used more effectively. Such tasks as demand the rather more routine technical than professional clinical skills will be passed on to auxiliary personnel. There will still be an impressive range of complex clinical tasks which the dentist because of his superior professional education, clinical training and experience, and scientific knowledge will be obliged to perform.

The advantages which will result from this new professional role and the consequent re-organization of dental practice and dental health care delivery service to accommodate the new auxiliaries will be many and varied and will reflect not only on the dentist himself and his dental health team but also upon the public whom he is dedicated to serve. In a narrow sense the professional status of the dentist will be immeasurably enhanced (as has been the case in other professions as they have expanded the number, duties, and quality of their auxiliaries) and this enhanced status will reflect upon the sub-professional and other members of this health team. This will be true whatever the setting of dental practice, whether in private practice, school and community dental clinics, public health service clinics or hospital dental service clinics. In the wider sense the dental health needs of a much broader segment of the Canadian population will be met with all the consequent contributions that these services will make to the general well being and health of the wide community. To this end the Ad Hoc Committee calls upon the whole dental profession, general practitioners and specialists alike, in both individual and associational terms, to see not only that the changes recommended in this report are accepted and supported but also to display the positive role of leadership and initiative, of which they are capable, in seeing that the foregoing recommendations of the Committee reach fruition.

In submitting this report the Chairman would like to add that the opinions expressed are the unanimous opinions of the Committee. I think it only fair to say that this was a most devoted Committee and in the nine meetings held the attendance, while not always entirely 100 per cent, was very close to that and on the whole it was a Committee which was devoted to its work. All the members of the Committee individually took an active part in considering and reaching the conclusions which are expressed in this report and it is the co-operative result of their discussions which is embodied in it.

Mr. Cleve Kidd, who up to the time of his recent retirement was the Executive Vice President of the Canadian Air Line Pilots Association

stationed in Montreal, was nominated to this Committee to represent the public interest and he amply fulfilled that duty.

The dentists on the Committee from the field of private practice, Drs. J.G. Belanger, C.E. Dexter, M.A. Kamienski, and J.F. Reid; from dental education, Dr. C.W.B. McPhail; from dental education and public health, Dr. A.M. Hunt; and from dental auxiliary education, Dr. Marjorie Jackson, all gave of their very busy time willingly and freely. They provided the Committee with a sympathetic understanding of the problems faced by dentists in private practice and those from education and public health brought their extensive experience in these fields to bear in a decisive manner.

Dr. G.D.W. Cameron, formerly Deputy Minister of Health, Ottawa, brought to the Committee his broad knowledge of the field of public health and his knowledge of the extensive role which auxiliaries play in a sister profession, medicine.

Particular mention should be made of Dr. Bruce A. McFarlane, Professor of Sociology of the Department of Sociology and Anthropology at Carleton University, Ottawa, who through his services rendered to the Hall Commission had a very wide background on the state and condition of the dental profession, a view which in the opinion of the Committee was still valid despite the lapse of time and was still very pertinent to the problems the Committee had to discuss. His knowledge in these matters was placed unreservedly at the Committee's disposal and was very valuable to it.

This report should also not be presented without thanking the Minister for the services of Dr. R.A. Connor, Chief of the Dental Health Division in the Department of National Health and Welfare and also to Dr. T.L. Marsh of the same Division who transcribed the discussions and conclusions of the Committee at its various meetings. Dr. Connor was invaluable in looking after the administrative arrangements which were necessary for our various meetings and the smooth functioning of the Committee is very substantially indebted to his efforts. To these gentlemen in particular, the members of the Committee wish to express their gratitude and thanks.

Thanks are given to Mrs. Sharon French, Consultant in Dental Hygiene, Dental Health Division, who, amongst other duties pertaining to the Committee, ensured that the Committee received copies of all briefs and other information submitted to the Secretariate. Thanks are also given to the secretarial staff of the Division who performed a yeoman task by preparing the proceedings of the meetings and the preliminary drafts, plus the final version of the report for printing.

If the Chairman may be permitted a word on his own he would express his thanks not only to these gentlemen and other members of the staff of the Division but to all the members of the Committee who so conscientiously, and at times painfully, worked over the problems that arose and who in the end achieved a unanimous report.

APPENDIX A

BRIEFS AND LETTERS RECEIVED BY THE AD HOC COMMITTEE ON DENTAL AUXILIARIES

BRIEFS

Alberta Certified Dental Mechanics and Public Denturists Society of British Columbia.

Alberta Dental Association.

Alberta, Department of Health.

L'Association des Techniciens Dentaires de la Province de Québec.

Association of Canadian Faculties of Dentistry.

Association of Dental Technicians (Denturists) in Manitoba.

Association of Dental Technicians of the Province of Saskatchewan.

Association Professionnelle des Propriétaires de Laboratoire Dentaire de la Province de Québec.

British Columbia Dental Association.

Canadian Academy of Prosthodontics.

Canadian Dental Association.

Canadian Dental Hygienists' Association.

Canadian Dental Nurses and Assistants Association.

Dental Laboratories Association of Ontario.

Denturists Society of Saskatchewan.

Faculté de Chirurgie Dentaire de l'Université de Montréal.

Governing Board of Dental Technicians of the Province of Ontario.

Manitoba Dental Association.

Manitoba, Department of Health.

Nova Scotia Dental Association.

Nova Scotia, Department of Public Health.

Ontario Dental Association and The Royal College of Dental Surgeons of Ontario.

Prince Edward Island Dental Association.

Provincial Society of Dental Technicians of Manitoba.

Saskatchewan, Department of Public Health.

LETTERS

Collège des Chirurgiens Dentistes de la Province de Québec.

Dental Laboratory Association of British Columbia.

Federated Legislative Council.

New Brunswick Dental Technicians Association.

Nova Scotia Dental Technicians Association.

APPENDIX B

NEW YORK STATE STUDY

Information on the New York State study was obtained from a publication entitled "Technicians for the Health Field: A Community College Health Careers Study Program", released by the University of the State of New York.

The program was stimulated by the results of a conference held in St. Louis, Missouri, on November 17, 1965. At that conference, two key concerns in health technology education were noted:

a) The emerging occupational roles growing out of changing medical practice and health services are tending to create an unrealistic, overly fragmented series of technical specialties. A watchful eye was counseled to avoid unwarranted occupational splintering and to encourage, to the extent possible, broadly prepared technicians capable of shifting their functions within the health field as the field itself undergoes inevitable shifts in emphases. It was recommended that individuals be broadly prepared for clusters of related technical fields rather than for narrowly-circumscribed specialty areas.

b) Consideration should be given to the need for keeping the door open to the student who later wishes to use his technical education as the basis for further formal education and occupational advancement. It was recognized that efforts to provide for an easy articulation between technical preparation and professional advancement in the same field are a joint responsibility of the initial technician program and programs educating for the professions. The problem of transfer must become a concomitant consideration as curriculum planning continues. It requires a continuous dialogue between educators concerned with both lower and upper division collegiate education.

On the basis of this conference, it was decided to study the feasibility of using the Community College program in the State of New York for the development of standardized educational programs in the health technologies. This resulted in the inauguration of the Community College Health Careers Project, a five phase project under the aegis of the Board of Regents of the University of the State of New York which was initially financed by a grant from the W.K. Kellogg Foundation. The five phases are as follows:

PHASE I – Conduct a statewide curriculum study which involves medical, and dental groups, educators, para-medical practitioners and health service technicians in the development of curriculum guidelines and recommendations for instructor training.

PHASE II – Develop programs in at least two teacher training institutions for the preparation of instructors of health service technicians.

PHASE III – Develop demonstration centers in selected community colleges designated as pilot programs for new health service technology curriculums.

PHASE IV – Assist selected employing agencies to develop orientation and evaluation programs for graduates of the demonstration centers.

PHASE V – Conduct a follow-up study of new graduates on the job.

A number of criteria were developed to assist in the selection of the health technologies to be studied:

1. Magnitude of need.
2. Potential willingness of employers to hire the graduates.
3. Potential willingness of professionals to co-operate in the conduct of pilot projects.
4. Potential co-operation of the professional societies.
5. Salary and working conditions adequate to ensure recruitment of students.
6. Reasonable expectation that clinical facilities will be available for training.
7. Tentative length of time required to complete the educational program.

The Advisory Committee set up study groups for the various technologies. They consisted of three types of individuals:

1. Professional health practitioners.
2. Health service technologists from the particular field under study.
3. Community College staff members.

Each study group centred its activities around a series of key questions:

1. What skills, knowledge and attitudes must one possess to function successfully in the field?
2. Where and under what conditions can the necessary knowledge and skills be developed, i.e., classroom, laboratory, clinical facility, etc.
3. What kind of campus laboratory and extended campus clinical experience must a college be able to provide to its students?
4. What kinds of formal education, work experience and preparation for teaching will best qualify a co-ordinator-instructor in this field?

On the basis of these studies, the Advisory Committee recommended the following:

1. Inaugurate curriculum study sections in each of the proposed health service technologies.

2. Encourage the curriculum study groups to consider the vertical as well as the horizontal implications of the programs. "It would serve a broader educational purpose to educate for continuing professional growth rather than for terminal technical competency".
3. Encourage the study groups to develop educational guidelines based on the technician's occupational needs rather than only on the consumer agency's task needs.
4. Look into the possibility of establishing a "basic core of study" for all or most of the proposed health service technologies. This would lend itself to a more economical use of existing adequately prepared faculty.

On the basis of these studies, a core curriculum has been developed and courses in a number of health technologies are now being offered at New York State Universities and Colleges.

The major problem was the shortage of qualified teachers in the various health technology fields. It was found that practitioners in the various fields are not necessarily good teachers. A Health Technologies Teacher Preparation Centre has therefore been set up at the City University of New York. It is financed by a grant from the W.K. Kellogg Foundation.

APPENDIX C

MEETINGS OF THE AD HOC COMMITTEE ON DENTAL AUXILIARIES

MEETING NO. 1

Wednesday, March 13, 1968, Ottawa.

In attendance: Members of the Committee.

MEETING NO. 2

Friday, June 21, 1968, Ottawa.

In attendance: Members of the Committee.

MEETING NO. 3

Friday, November 15, 1968, Ottawa.

In attendance: Members of the Committee.

Presentation: *Brief* of the Canadian Dental Hygienists' Association by Mrs. Shelley Altman, President of the Canadian Dental Hygienists' Association.

MEETING NO. 4

Monday, March 3, 1969, Ottawa.

In attendance: Members of the Committee.

Presentations: *Brief* from the Nova Scotia Department of Public Health by Dr. Wilson C. King, Director of Dental Services, Department of Health, Province of Nova Scotia.

Brief from the Province of Saskatchewan, Department of Public Health by Dr. T.M. Curry, Director of Dental Services, Province of Saskatchewan.

MEETING NO. 5

Monday, December 8, 1969, Ottawa.

In attendance: Members of the Committee.

MEETING NO. 6

Friday, January 30, 1970, Ottawa.

In attendance: Members of the Committee.

Presentations: *Brief* from The Alberta Certified Dental Mechanics Society and Public Denturists Society of British Columbia, by Mr. Lucien Maynard, Q.C.

Brief from the Governing Board of Dental Technicians of Ontario, by Mr. Edwin Vowles, Vice-Chairman; Mr. Charles Jewson, Secretary-Registrar; and Mr. J.D. Walker, Member; and the Dental Laboratories Association of Ontario, by Mr. W.J. Southby, President; Mr. F.J. Bryan, Secretary-Manager.

Brief from The Association of Dental Technicians of the Province of Quebec, by Mr. Leo Materazzo, T.D.C., Secretary-Treasurer.

Brief from The Canadian Dental Association by Dr. W.G. McIntosh, Executive Director.

MEETING NO. 7

Tuesday, March 31 and Wednesday, April 1, 1970, Ottawa.

In attendance: Members of the Committee.

The Governing Board of Dental Technicians of Ontario and The Dental Laboratories Association of Ontario appeared again separately before the Committee.

MEETING NO. 8

Monday, July 13 and Tuesday, July 14, 1970, Ottawa.

In attendance: Members of the Committee.

MEETING NO. 9

Friday, September 25, 1970, Ottawa.

In attendance: Members of the Committee.

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